MEMORANDUM

TO: Mr. Addison Rice
Anderson, Mulholland and Associates

DATE: July 11, 2016

FROM: R. Infante

FILE: 1606298-1606272

RE: Data Validation
Air samples
SDG: 1606298A; 1606298B; 1606298C; 1606298D; 1606298E; 1606298F; 1606298G; 1606272

SUMMARY

Full validation was performed on the data for several gas samples analyzed for volatile organic compounds (full suite) and methanol by method Compendium Method TO-15: Determination Of Volatile Organic Compounds (VOCs) In Air Collected In Specially-Prepared Canisters And Analyzed By Gas Chromatography/Mass Spectrometry (GC/MS), January, 1999. Methane analyzed by ASTM method D-1946-modified. Naphthalene by method Compendium Method TO-17: Determination of Volatile Organic Compounds in Ambient Air Using Active Sampling Onto Sorbent Tubes, January 1999. The samples were collected at the Bristol Myer Squib, Humacao, PR site on July 11-12, 2016 and submitted to Eurofins Air Toxics, Inc. of Folson, California that analyzed and reported the results under delivery groups (SDG) 1606298A; 1606298B; 1606298C; 1606298D; 1606298E; 1606298F; 1606298G; 1606272.

The sample results were assessed according to USEPA data validation guidance documents in the following order of precedence: Compendium Method TO-15. Determination Of Volatile Organic Compounds (VOCs) In Air Collected In Specially-Prepared Canisters And Analyzed By Gas Chromatography/Mass Spectrometry (GC/MS), January, 1999; Validating Air Samples. Volatile Organic Analysis of Ambient Air in Canisters by Method TO-15, (SOP # HW-31. Revision #4. October, 2006. The QC criteria of methods TO-17 and ASTM method D-1946-modified. The QC criteria and data validation actions listed on the data review worksheets are from the primary guidance document, unless otherwise noted.

In general the data is valid as reported and may be used for decision making purposes. The data results are acceptable for use. Results for chloromethane and ethanol were qualified as estimated (J) or (UJ) in sample 1606298B-09A to 1606298B-15A and 1606298E-16A due to continuing calibration check outside method performance limit. Ethanol and acetone were qualified as estimated (J) in samples 1606298A-01A/-02A due RPD outside laboratory control limits.

SAMPLES

The samples included in the review are listed below

Client Sample ID	Lab. Sample ID	Collected Date	Matrix	Analysis
B7IA-1(061016)	1606298A-01A	06/11/16	Air	TO-15 (full suite)
B7IA-1(061016)	1606298A -01AA	06/11/16	Air	TO-15 (full suite)
B7IA-1D(061016)	1606298A -02A	06/11/16	Air	TO-15 (full suite)
B7IA-2(061016)	1606298A -03A	06/11/16	Air	TO-15 (full suite)
B7IA-3(061016)	1606298A -04A	06/11/16	Air	TO-15 (full suite)
B7IA-4(061016)	1606298A -05A	06/11/16	Air	TO-15 (full suite)
B7IA-5(061016)	1606298A -06A	06/11/16	Air	TO-15 (full suite)
B7IA-6(061016)	1606298A -07A	06/11/16	Air	TO-15 (full suite)
B7AA(061016)	1606298A -08A	06/11/16	Air	TO-15 (full suite)
B7SS-1(061216)	1606298B-09A	06/12/16	Air	TO-15 (full suite)
B7SS-1D(061216)	1606298B -10A	06/12/16	Air	TO-15 (full suite)
B7SS-2(061216)	1606298B -11A	06/12/16	Air	TO-15 (full suite)
B7SS-3(061216)	1606298B -12A	06/12/16	Air	TO-15 (full suite)
B7SS-4(061216)	1606298B -13A	06/12/16	Air	TO-15 (full suite)
B7SS-5(061216)	1606298B -14A	06/12/16	Air	TO-15 (full suite)
B7SS-6(061216)	1606298B -15A	06/12/16	Air	TO-15 (full suite)
B15SS-1(061216)	1606298E-16A	06/12/16	Air	TO-15 (full suite)
B7IA-1(061016)	1606298A-01A	06/11/16	Air	TO-15 (methanol)
B7IA-1D(061016)	1606298A-02A	06/11/16	Air	TO-15 (methanol)
B7IA-2(061016)	1606298A-03A	06/11/16	Air	TO-15 (methanol)
B7IA-3(061016)	1606298A-04A	06/11/16	Air	TO-15 (methanol)
B7IA-4(061016)	1606298A-05A	06/11/16	Air	TO-15 (methanol)
B7IA-5(061016)	1606298A-06A	06/11/16	Air	TO-15 (methanol)
B7IA-6(061016)	1606298A-07A	06/11/16	Air	TO-15 (methanol)
B7AA(061016)	1606298A-08A	06/11/16	Air	TO-15 (methanol)
B7SS-1(061216)	1606298B-09A	06/12/16	Air	TO-15 (methanol)
B7SS-1D(061216)	1606298B-10A	06/12/16	Air	TO-15 (methanol)
B7SS-2(061216)	1606298B-11A	06/12/16	Air	TO-15 (methanol)
B7SS-3(061216)	1606298B-12A	06/12/16	Air	TO-15 (methanol)
B7SS-4(061216)	1606298B-13A	06/12/16	Air	TO-15 (methanol)
B7SS-5(061216)	1606298B-14A	06/12/16	Air	TO-15 (methanol)
B7SS-6(061216)	1606298B-15A	06/12/16	Air	TO-15 (methanol)
B15SS-1(061216)	1606298E-16A	06/12/16	Air	TO-15 (methanol)
B7IA-1(061016)	1606272-01A	06/11/16	Air	TO-17 (naphthalene)
B7IA-1D(061016)	1606272-02A	06/11/16	Air	TO-17 (naphthalene)
B7IA-2(061016)	1606272-03A	06/11/16	Air	TO-17 (naphthalene)
B7IA-3(061016)	1606272-04A	06/11/16	Air	TO-17 (naphthalene)
B7IA-4(061016)	1606272-05A	06/11/16	Air	TO-17 (naphthalene)
B7IA-5(061016)	1606272-06A	06/11/16	Air	TO-17 (naphthalene)
B7IA-6(061016)	1606272-07A	06/11/16	Air	TO-17 (naphthalene)
B7AA(061016)	1606272-08A	06/11/16	Air	TO-17 (naphthalene)
B7SS-1(061216)	1606272-09A	06/12/16	Air	TO-17 (naphthalene)
B7SS-1D(061216)	1606272-10A	06/12/16	Air	TO-17 (naphthalene)
B7SS-2(061216)	1606272 -11A	06/12/16	Air	TO-17 (naphthalene)

Client Sample ID	Lab. Sample ID	Collected Date	Matrix	Analysis
B7SS-3(061216)	1606272-12A	06/12/16	Air	TO-17 (naphthalene)
B7SS-4(061216)	1606272-13A	06/12/16	Air	TO-17 (naphthalene)
B7SS-5(061216)	1606272-14A	06/12/16	Air	TO-17 (naphthalene)
B7SS-6(061216)	1606272-15A	06/12/16	Air	TO-17 (naphthalene)
B15SS-1(061216)	1606272-16A	06/12/16	Air	TO-17 (naphthalene)
B7IA-1(061016)	1606298D-01A	06/11/16	Air	ASTM D-1946 (methane)
B7IA-1D(061016)	1606298D-02A	06/11/16	Air	ASTM D-1946 (methane)
B7IA-2(061016)	1606298D-03A	06/11/16	Air	ASTM D-1946 (methane)
B7IA-3(061016)	1606298D-04A	06/11/16	Air	ASTM D-1946 (methane)
B7IA-4(061016)	1606298D-05A	06/11/16	Air	ASTM D-1946 (methane)
B7IA-5(061016)	1606298D-06A	06/11/16	Air	ASTM D-1946 (methane)
B7IA-6(061016)	1606298D-07A	06/11/16	Air	ASTM D-1946 (methane)
B7AA(061016)	1606298D-08A	06/11/16	Air	ASTM D-1946 (methane)
B7SS-1(061216)	1606298D-09A	06/12/16	Air	ASTM D-1946 (methane)
B7SS-1D(061216)	1606298D-10A	06/12/16	Air	ASTM D-1946 (methane)
B7SS-2(061216)	1606298D-11A	06/12/16	Air	ASTM D-1946 (methane)
B7SS-3(061216)	1606298D-12A	06/12/16	Air	ASTM D-1946 (methane)
B7SS-4(061216)	1606298D-13A	06/12/16	Air	ASTM D-1946 (methane)
B7SS-5(061216)	1606298D-14A	06/12/16	Air	ASTM D-1946 (methane)
B7SS-6(061216)	1606298D-15A	06/12/16	Air	ASTM D-1946 (methane)
B15SS-1(061216)	1606298G-16A	06/12/16	Air	ASTM D-1946 (methane)

REVIEW ELEMENTS

Sample data were reviewed for the following parameters, where applicable to the method

- Agreement of analysis conducted with chain of custody (COC) form
- Holding time and sample preservation
- Gas chromatography/mass spectrometry (GC/MS) tunes
- Initial and continuing calibrations
- Method blanks/trip blanks/field blank
- Canister cleaning certification criteria
- Surrogate spike recovery
- Internal standard performance and retention times
- Field duplicate results
- Laboratory control sample/laboratory control sample duplicate (LCS/LCSD) results
- Quantitation limits and sample results

DISCUSSION

Agreement of Analysis Conducted with COC Request

Sample reports corresponded to the analytical request designated on the chain-of-custody form.

The Chain of Custody (COC) information for sample B7IA-1D(061016) did not match the entry on the sample tag with regard to sample identification. The information on the COC was used to process and report the sample.

Holding Times and Sample Preservation

Sample preservation was acceptable. Samples received in good conditions.

Samples analyzed within method recommended holding time.

GC/MS Tunes

The frequency and abundance of bromofluorobenzene (BFB) tunes were within the QC acceptance criteria. All samples were analyzed within the tuning criteria associated with the method.

Initial and Continuing Calibrations

VOCs – (Method TO-15-full suite)
Initial calibration meets method performance criteria. Ongoing accuracy of the instrument was determined by the analysis of a continuing calibration standard, continuing calibration meet the method performance criteria except for the following analytes:

DATE	LAB FILE ID#	CRITERIA OUT RFs, %RSD, %D, r	COMPOUND	SAMPLES AFFECTED
Initial and continuing calibration met the method performance criteria except the cases described in this document.				
MSD-17				
06/16/16	1606298E-18A	31 %	Chloromethane	1606298B-09A to -15A; 1606298E-16A
		40 %	Ehanol	

Results qualified estimated (J) or (UJ) in affected samples.

VOCs – (Method TO-15-methanol)
A one point initial calibration meets method performance criteria. Ongoing accuracy of the instrument was determined by the analysis of a continuing calibration standard, continuing calibration meet the method performance criteria.

VOCs – (Method TO-17-naphthalene)
Initial calibration meets method performance criteria. Ongoing accuracy of the instrument was determined by the analysis of a continuing calibration standard, continuing calibration meet the method performance criteria.

VOCs – (Method ASTM D-1946-modified - methane)
Initial calibration meets method performance criteria. Ongoing accuracy of the instrument was determined by the analysis of a continuing calibration standard, continuing calibration meet the method performance criteria

Method Blank/Trip Blank/Field Blank

Several VOCs TO-15 (full suite) analytes were detected in the method blanks analyzed below the reporting limit/action level. Laboratory qualified the results as estimated (J) in the method blanks. No further qualification made.

No sample analytes were detected in methods blanks analyzed for naphthalene, methanol and methane.

Summa canister met cleaning certification criteria.

No trip/field blank analyzed with this data package.

Surrogate Spike Recovery

The surrogate recoveries as per method TO-15, TO-17 and ASTM D-1946 were within the laboratory QC acceptance limits in all samples analyzed.

Internal Standard Performance

VOCs - TO-15 and TO-17
Samples were spiked with the method specified internal standard. Internal standard are performance and retention times met the QC acceptance criteria in all sample analyses and calibration standards.

Laboratory/Field Duplicate Results

Laboratory and field duplicates were analyzed as part of this data set. Target analytes meet the RPD performance criteria of + 25 % for analytes 5 x SQL except for the following for the TO-15 (full suite) analytes:

COMPOUND	SQL	SAMPLE CONC.	DUPLICATE CONC.	RPD	ACTION
1606298A-01A/-02A					
Ethanol	0.80	8.0	5.8	32 %	Qualify results (J) in sample and duplicate
Acetone	0.80	14	6.2	77 %	

Laboratory/field blanks RPD for TO-15 (methanol); TO-17 (naphthalene); and ASTM D-1946 (methane) were within laboratory control limits.

LCS/LCSD Results

LCS/LCSD (blank spike) analyzed by the laboratory associated with this data package; % recoveries and RPD within laboratory and generally acceptable control limits except for the following analytes:

LCS ID	COMPOUND	% R	QC LIMIT
1606298A-11A/11AA	Bromomethane	133/132 %	70 - 130

LCS ID	COMPOUND	% R	QC LIMIT
1606298A-19A/19AA	Chloromomethane	65/69 %	70 - 130
1606298A-18A/18AA	1,3-butadiene	69 %	70 - 130
	Ehanol	63/62 %	70 - 130
	Acetone	69 %	70 - 130
	Carbon_disulfide	66/68 %	70 - 130
	Tetrahydrofuran	69 %	70 - 130

Bromomethane not detected in the sample batch, not-detected in sample, non-detects are accepted. For analytes detected below the laboratory control limits, no action taken, % recoveries were within generally acceptable control limits.

Quantitation Limits and Sample Results

Dilutions were not performed on TO-15 samples (see worksheet).

Calculations were spot checked.

Certification

The samples reported on SDG: 1606298A; 1606298B; 1606298C; 1606298D; 1606298E; 1606298F; 1606298G; 1606272 and described in the sample table were analyzed following standard procedures accepted by regulatory agencies. The quality control requirements met the methods criteria except in the occasions described in this document. The results are valid some of the results were qualified.

Rafael Infante
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Client Sample ID: B7IA-1(061016)

Lab ID#: 1606298A-01A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	20061514	**Date of Collection:**	6/11/16 6:50:00 PM
Dil. Factor:	1.61	**Date of Analysis:**	6/15/16 08:15 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.16	0.48	0.80	2.4
Freon 114	0.16	Not Detected	1.1	Not Detected
Chloromethane	0.80	1.0	1.7	2.2
Vinyl Chloride	0.16	Not Detected	0.41	Not Detected
1,3-Butadiene	0.16	Not Detected	0.36	Not Detected
Bromomethane	0.80	Not Detected	3.1	Not Detected
Chloroethane	0.80	Not Detected	2.1	Not Detected
Freon 11	0.16	7.8	0.90	44
Ethanol	0.80	8.0	1.5	15
Freon 113	0.16	0.064 J	1.2	0.49 J
1,1-Dichloroethene	0.16	Not Detected	0.64	Not Detected
Acetone	0.80	14	1.9	34
2-Propanol	0.80	2.6	2.0	6.3
Carbon Disulfide	0.80	Not Detected	2.5	Not Detected
3-Chloropropene	0.80	Not Detected	2.5	Not Detected
Methylene Chloride	0.32	0.19 J	1.1	0.66 J
Methyl tert-butyl ether	0.16	Not Detected	0.58	Not Detected
trans-1,2-Dichloroethene	0.16	Not Detected	0.64	Not Detected
Hexane	0.16	0.10 J	0.57	0.36 J
1,1-Dichloroethane	0.16	Not Detected	0.65	Not Detected
2-Butanone (Methyl Ethyl Ketone)	0.80	2.7	2.4	7.9
cis-1,2-Dichloroethene	0.16	Not Detected	0.64	Not Detected
Tetrahydrofuran	0.80	Not Detected	2.4	Not Detected
Chloroform	0.16	Not Detected	0.79	Not Detected
1,1,1-Trichloroethane	0.16	Not Detected	0.88	Not Detected
Cyclohexane	0.16	Not Detected	0.55	Not Detected
Carbon Tetrachloride	0.16	0.070 J	1.0	0.44 J
2,2,4-Trimethylpentane	0.80	Not Detected	3.8	Not Detected
Benzene	0.16	0.091 J	0.51	0.29 J
1,2-Dichloroethane	0.16	Not Detected	0.65	Not Detected
Heptane	0.16	0.17	0.66	0.70
Trichloroethene	0.16	Not Detected	0.86	Not Detected
1,2-Dichloropropane	0.16	Not Detected	0.74	Not Detected
1,4-Dioxane	0.16	Not Detected	0.58	Not Detected
Bromodichloromethane	0.16	Not Detected	1.1	Not Detected
cis-1,3-Dichloropropene	0.16	Not Detected	0.73	Not Detected
4-Methyl-2-pentanone	0.16	0.12 J	0.66	0.50 J
Toluene	0.16	2.2	0.61	8.4
trans-1,3-Dichloropropene	0.16	Not Detected	0.73	Not Detected
1,1,2-Trichloroethane	0.16	Not Detected	0.88	Not Detected
Tetrachloroethene	0.16	Not Detected	1.1	Not Detected
2-Hexanone	0.80	0.38 J	3.3	1.5 J

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Client Sample ID: B7IA-1(061016)

Lab ID#: 1606298A-01A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**20061514**	**Date of Collection:**	**6/11/16 6:50:00 PM**
Dil. Factor:	**1.61**	**Date of Analysis:**	**6/15/16 08:15 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	0.16	Not Detected	1.4	Not Detected
1,2-Dibromoethane (EDB)	0.16	Not Detected	1.2	Not Detected
Chlorobenzene	0.16	Not Detected	0.74	Not Detected
Ethyl Benzene	0.16	0.051 J	0.70	0.22 J
m,p-Xylene	0.16	0.12 J	0.70	0.52 J
o-Xylene	0.16	0.050 J	0.70	0.22 J
Styrene	0.16	0.034 J	0.68	0.14 J
Bromoform	0.16	Not Detected	1.7	Not Detected
Cumene	0.16	Not Detected	0.79	Not Detected
1,1,2,2-Tetrachloroethane	0.16	Not Detected	1.1	Not Detected
Propylbenzene	0.16	Not Detected	0.79	Not Detected
4-Ethyltoluene	0.16	0.036 J	0.79	0.18 J
1,3,5-Trimethylbenzene	0.16	Not Detected	0.79	Not Detected
1,2,4-Trimethylbenzene	0.16	0.051 J	0.79	0.25 J
1,3-Dichlorobenzene	0.16	Not Detected	0.97	Not Detected
1,4-Dichlorobenzene	0.16	Not Detected	0.97	Not Detected
alpha-Chlorotoluene	0.16	Not Detected	0.83	Not Detected
1,2-Dichlorobenzene	0.16	Not Detected	0.97	Not Detected
1,2,4-Trichlorobenzene	0.80	Not Detected	6.0	Not Detected
Hexachlorobutadiene	0.80	Not Detected	8.6	Not Detected
Naphthalene	0.80	0.028 J	4.2	0.15 J

J = Estimated value.

Container Type: 6 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	113	70-130
Toluene-d8	101	70-130
4-Bromofluorobenzene	95	70-130

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Client Sample ID: B7IA-1(061016) Lab Duplicate

Lab ID#: 1606298A-01AA

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	20061522	**Date of Collection:**	6/11/16 6:50:00 PM
Dil. Factor:	1.61	**Date of Analysis:**	6/16/16 10:24 AM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.16	0.55	0.80	2.7
Freon 114	0.16	Not Detected	1.1	Not Detected
Chloromethane	0.80	1.0	1.7	2.2
Vinyl Chloride	0.16	Not Detected	0.41	Not Detected
1,3-Butadiene	0.16	Not Detected	0.36	Not Detected
Bromomethane	0.80	Not Detected	3.1	Not Detected
Chloroethane	0.80	Not Detected	2.1	Not Detected
Freon 11	0.16	7.8	0.90	44
Ethanol	0.80	7.6	1.5	14
Freon 113	0.16	0.064 J	1.2	0.49 J
1,1-Dichloroethene	0.16	Not Detected	0.64	Not Detected
Acetone	0.80	14	1.9	35
2-Propanol	0.80	2.4	2.0	5.9
Carbon Disulfide	0.80	Not Detected	2.5	Not Detected
3-Chloropropene	0.80	Not Detected	2.5	Not Detected
Methylene Chloride	0.32	0.18 J	1.1	0.62 J
Methyl tert-butyl ether	0.16	Not Detected	0.58	Not Detected
trans-1,2-Dichloroethene	0.16	Not Detected	0.64	Not Detected
Hexane	0.16	0.090 J	0.57	0.32 J
1,1-Dichloroethane	0.16	Not Detected	0.65	Not Detected
2-Butanone (Methyl Ethyl Ketone)	0.80	2.8	2.4	8.1
cis-1,2-Dichloroethene	0.16	Not Detected	0.64	Not Detected
Tetrahydrofuran	0.80	Not Detected	2.4	Not Detected
Chloroform	0.16	Not Detected	0.79	Not Detected
1,1,1-Trichloroethane	0.16	Not Detected	0.88	Not Detected
Cyclohexane	0.16	Not Detected	0.55	Not Detected
Carbon Tetrachloride	0.16	0.069 J	1.0	0.43 J
2,2,4-Trimethylpentane	0.80	Not Detected	3.8	Not Detected
Benzene	0.16	0.086 J	0.51	0.28 J
1,2-Dichloroethane	0.16	Not Detected	0.65	Not Detected
Heptane	0.16	0.20	0.66	0.82
Trichloroethene	0.16	Not Detected	0.86	Not Detected
1,2-Dichloropropane	0.16	Not Detected	0.74	Not Detected
1,4-Dioxane	0.16	Not Detected	0.58	Not Detected
Bromodichloromethane	0.16	Not Detected	1.1	Not Detected
cis-1,3-Dichloropropene	0.16	Not Detected	0.73	Not Detected
4-Methyl-2-pentanone	0.16	0.12 J	0.66	0.51 J
Toluene	0.16	2.2	0.61	8.2
trans-1,3-Dichloropropene	0.16	Not Detected	0.73	Not Detected
1,1,2-Trichloroethane	0.16	Not Detected	0.88	Not Detected
Tetrachloroethene	0.16	Not Detected	1.1	Not Detected
2-Hexanone	0.80	0.35 J	3.3	1.4 J

Rafael Infante Méndez LIC # 1888

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Client Sample ID: B7IA-1(061016) Lab Duplicate

Lab ID#: 1606298A-01AA

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**20061522**	**Date of Collection: 6/11/16 6:50:00 PM**	
Dil. Factor:	**1.61**	**Date of Analysis: 6/16/16 10:24 AM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	0.16	Not Detected	1.4	Not Detected
1,2-Dibromoethane (EDB)	0.16	Not Detected	1.2	Not Detected
Chlorobenzene	0.16	Not Detected	0.74	Not Detected
Ethyl Benzene	0.16	Not Detected	0.70	Not Detected
m,p-Xylene	0.16	0.12 J	0.70	0.52 J
o-Xylene	0.16	0.048 J	0.70	0.21 J
Styrene	0.16	0.027 J	0.68	0.12 J
Bromoform	0.16	Not Detected	1.7	Not Detected
Cumene	0.16	Not Detected	0.79	Not Detected
1,1,2,2-Tetrachloroethane	0.16	Not Detected	1.1	Not Detected
Propylbenzene	0.16	Not Detected	0.79	Not Detected
4-Ethyltoluene	0.16	0.037 J	0.79	0.18 J
1,3,5-Trimethylbenzene	0.16	Not Detected	0.79	Not Detected
1,2,4-Trimethylbenzene	0.16	0.040 J	0.79	0.20 J
1,3-Dichlorobenzene	0.16	Not Detected	0.97	Not Detected
1,4-Dichlorobenzene	0.16	Not Detected	0.97	Not Detected
alpha-Chlorotoluene	0.16	Not Detected	0.83	Not Detected
1,2-Dichlorobenzene	0.16	Not Detected	0.97	Not Detected
1,2,4-Trichlorobenzene	0.80	Not Detected	6.0	Not Detected
Hexachlorobutadiene	0.80	Not Detected	8.6	Not Detected
Naphthalene	0.80	0.019 J	4.2	0.10 J

J = Estimated value.

Container Type: 6 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	111	70-130
Toluene-d8	100	70-130
4-Bromofluorobenzene	93	70-130

ESTADO LIBRE ASOCIADO DE PUERTO RICO
Rafael Infante Méndez
LIC # 1888
QUIMICO

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Client Sample ID: B7IA-1D(061016)

Lab ID#: 1606298A-02A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**20061515**	**Date of Collection:**	**6/11/16 6:50:00 PM**
Dil. Factor:	**1.67**	**Date of Analysis:**	**6/15/16 09:02 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.17	0.58	0.82	2.8
Freon 114	0.17	Not Detected	1.2	Not Detected
Chloromethane	0.84	1.1	1.7	2.3
Vinyl Chloride	0.17	Not Detected	0.43	Not Detected
1,3-Butadiene	0.17	Not Detected	0.37	Not Detected
Bromomethane	0.84	Not Detected	3.2	Not Detected
Chloroethane	0.84	Not Detected	2.2	Not Detected
Freon 11	0.17	7.5	0.94	42
Ethanol	0.84	5.8	1.6	11
Freon 113	0.17	0.072 J	1.3	0.55 J
1,1-Dichloroethene	0.17	Not Detected	0.66	Not Detected
Acetone	0.84	6.2	2.0	15
2-Propanol	0.84	2.5	2.0	6.1
Carbon Disulfide	0.84	0.069 J	2.6	0.22 J
3-Chloropropene	0.84	Not Detected	2.6	Not Detected
Methylene Chloride	0.33	0.46	1.2	1.6
Methyl tert-butyl ether	0.17	Not Detected	0.60	Not Detected
trans-1,2-Dichloroethene	0.17	Not Detected	0.66	Not Detected
Hexane	0.17	0.11 J	0.59	0.40 J
1,1-Dichloroethane	0.17	Not Detected	0.68	Not Detected
2-Butanone (Methyl Ethyl Ketone)	0.84	0.84	2.5	2.5
cis-1,2-Dichloroethene	0.17	Not Detected	0.66	Not Detected
Tetrahydrofuran	0.84	Not Detected	2.5	Not Detected
Chloroform	0.17	Not Detected	0.82	Not Detected
1,1,1-Trichloroethane	0.17	Not Detected	0.91	Not Detected
Cyclohexane	0.17	0.051 J	0.57	0.18 J
Carbon Tetrachloride	0.17	0.059 J	1.0	0.37 J
2,2,4-Trimethylpentane	0.84	Not Detected	3.9	Not Detected
Benzene	0.17	0.096 J	0.53	0.31 J
1,2-Dichloroethane	0.17	Not Detected	0.68	Not Detected
Heptane	0.17	0.10 J	0.68	0.41 J
Trichloroethene	0.17	Not Detected	0.90	Not Detected
1,2-Dichloropropane	0.17	Not Detected	0.77	Not Detected
1,4-Dioxane	0.17	Not Detected	0.60	Not Detected
Bromodichloromethane	0.17	Not Detected	1.1	Not Detected
cis-1,3-Dichloropropene	0.17	Not Detected	0.76	Not Detected
4-Methyl-2-pentanone	0.17	0.040 J	0.68	0.16 J
Toluene	0.17	2.2	0.64	8.5
trans-1,3-Dichloropropene	0.17	Not Detected	0.76	Not Detected
1,1,2-Trichloroethane	0.17	Not Detected	0.91	Not Detected
Tetrachloroethene	0.17	Not Detected	1.1	Not Detected
2-Hexanone	0.84	0.097 J	3.4	0.40 J

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Client Sample ID: B7IA-1D(061016)

Lab ID#: 1606298A-02A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**20061515**	**Date of Collection:**	**6/11/16 6:50:00 PM**
Dil. Factor:	**1.67**	**Date of Analysis:**	**6/15/16 09:02 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	0.17	Not Detected	1.4	Not Detected
1,2-Dibromoethane (EDB)	0.17	Not Detected	1.3	Not Detected
Chlorobenzene	0.17	Not Detected	0.77	Not Detected
Ethyl Benzene	0.17	0.053 J	0.72	0.23 J
m,p-Xylene	0.17	0.15 J	0.72	0.65 J
o-Xylene	0.17	0.065 J	0.72	0.28 J
Styrene	0.17	0.066 J	0.71	0.28 J
Bromoform	0.17	Not Detected	1.7	Not Detected
Cumene	0.17	Not Detected	0.82	Not Detected
1,1,2,2-Tetrachloroethane	0.17	Not Detected	1.1	Not Detected
Propylbenzene	0.17	Not Detected	0.82	Not Detected
4-Ethyltoluene	0.17	0.051 J	0.82	0.25 J
1,3,5-Trimethylbenzene	0.17	Not Detected	0.82	Not Detected
1,2,4-Trimethylbenzene	0.17	0.050 J	0.82	0.25 J
1,3-Dichlorobenzene	0.17	Not Detected	1.0	Not Detected
1,4-Dichlorobenzene	0.17	Not Detected	1.0	Not Detected
alpha-Chlorotoluene	0.17	Not Detected	0.86	Not Detected
1,2-Dichlorobenzene	0.17	Not Detected	1.0	Not Detected
1,2,4-Trichlorobenzene	0.84	Not Detected	6.2	Not Detected
Hexachlorobutadiene	0.84	Not Detected	8.9	Not Detected
Naphthalene	0.84	0.019 J	4.4	0.10 J

J = Estimated value.

Container Type: 6 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	116	70-130
Toluene-d8	100	70-130
4-Bromofluorobenzene	95	70-130

ESTADO LIBRE ASOCIADO DE PUERTO RICO
Rafael Infante Méndez
LIC # 1888
QUIMICO LICENCIADO

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Client Sample ID: B7IA-2(061016)

Lab ID#: 1606298A-03A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**20061516**	**Date of Collection:**	**6/11/16 7:50:00 PM**
Dil. Factor:	**1.60**	**Date of Analysis:**	**6/15/16 09:41 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.16	0.61	0.79	3.0
Freon 114	0.16	Not Detected	1.1	Not Detected
Chloromethane	0.80	0.88	1.6	1.8
Vinyl Chloride	0.16	Not Detected	0.41	Not Detected
1,3-Butadiene	0.16	0.070 J	0.35	0.15 J
Bromomethane	0.80	Not Detected	3.1	Not Detected
Chloroethane	0.80	Not Detected	2.1	Not Detected
Freon 11	0.16	1.0	0.90	5.8
Ethanol	0.80	12	1.5	24
Freon 113	0.16	0.074 J	1.2	0.57 J
1,1-Dichloroethene	0.16	Not Detected	0.63	Not Detected
Acetone	0.80	12	1.9	28
2-Propanol	0.80	5.5	2.0	14
Carbon Disulfide	0.80	0.072 J	2.5	0.22 J
3-Chloropropene	0.80	Not Detected	2.5	Not Detected
Methylene Chloride	0.32	0.21 J	1.1	0.74 J
Methyl tert-butyl ether	0.16	Not Detected	0.58	Not Detected
trans-1,2-Dichloroethene	0.16	Not Detected	0.63	Not Detected
Hexane	0.16	0.078 J	0.56	0.28 J
1,1-Dichloroethane	0.16	Not Detected	0.65	Not Detected
2-Butanone (Methyl Ethyl Ketone)	0.80	2.4	2.4	7.1
cis-1,2-Dichloroethene	0.16	Not Detected	0.63	Not Detected
Tetrahydrofuran	0.80	Not Detected	2.4	Not Detected
Chloroform	0.16	0.039 J	0.78	0.19 J
1,1,1-Trichloroethane	0.16	Not Detected	0.87	Not Detected
Cyclohexane	0.16	Not Detected	0.55	Not Detected
Carbon Tetrachloride	0.16	0.082 J	1.0	0.52 J
2,2,4-Trimethylpentane	0.80	Not Detected	3.7	Not Detected
Benzene	0.16	0.085 J	0.51	0.27 J
1,2-Dichloroethane	0.16	Not Detected	0.65	Not Detected
Heptane	0.16	Not Detected	0.66	Not Detected
Trichloroethene	0.16	Not Detected	0.86	Not Detected
1,2-Dichloropropane	0.16	Not Detected	0.74	Not Detected
1,4-Dioxane	0.16	0.20	0.58	0.71
Bromodichloromethane	0.16	Not Detected	1.1	Not Detected
cis-1,3-Dichloropropene	0.16	Not Detected	0.73	Not Detected
4-Methyl-2-pentanone	0.16	0.10 J	0.66	0.43 J
Toluene	0.16	0.22	0.60	0.82
trans-1,3-Dichloropropene	0.16	Not Detected	0.73	Not Detected
1,1,2-Trichloroethane	0.16	Not Detected	0.87	Not Detected
Tetrachloroethene	0.16	Not Detected	1.1	Not Detected
2-Hexanone	0.80	0.34 J	3.3	1.4 J

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Client Sample ID: B7IA-2(061016)

Lab ID#: 1606298A-03A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**20061516**	**Date of Collection: 6/11/16 7:50:00 PM**	
Dil. Factor:	**1.60**	**Date of Analysis: 6/15/16 09:41 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	0.16	Not Detected	1.4	Not Detected
1,2-Dibromoethane (EDB)	0.16	Not Detected	1.2	Not Detected
Chlorobenzene	0.16	Not Detected	0.74	Not Detected
Ethyl Benzene	0.16	Not Detected	0.69	Not Detected
m,p-Xylene	0.16	0.098 J	0.69	0.42 J
o-Xylene	0.16	Not Detected	0.69	Not Detected
Styrene	0.16	0.045 J	0.68	0.19 J
Bromoform	0.16	Not Detected	1.6	Not Detected
Cumene	0.16	Not Detected	0.79	Not Detected
1,1,2,2-Tetrachloroethane	0.16	Not Detected	1.1	Not Detected
Propylbenzene	0.16	Not Detected	0.79	Not Detected
4-Ethyltoluene	0.16	0.034 J	0.79	0.17 J
1,3,5-Trimethylbenzene	0.16	Not Detected	0.79	Not Detected
1,2,4-Trimethylbenzene	0.16	0.054 J	0.79	0.27 J
1,3-Dichlorobenzene	0.16	Not Detected	0.96	Not Detected
1,4-Dichlorobenzene	0.16	Not Detected	0.96	Not Detected
alpha-Chlorotoluene	0.16	Not Detected	0.83	Not Detected
1,2-Dichlorobenzene	0.16	Not Detected	0.96	Not Detected
1,2,4-Trichlorobenzene	0.80	Not Detected	5.9	Not Detected
Hexachlorobutadiene	0.80	Not Detected	8.5	Not Detected
Naphthalene	0.80	0.033 J	4.2	0.17 J

J = Estimated value.

Container Type: 6 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	118	70-130
Toluene-d8	100	70-130
4-Bromofluorobenzene	95	70-130

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Client Sample ID: B7IA-3(061016)

Lab ID#: 1606298A-04A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	20061517	**Date of Collection:**	6/11/16 7:47:00 PM
Dil. Factor:	1.87	**Date of Analysis:**	6/15/16 10:20 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.19	0.49	0.92	2.4
Freon 114	0.19	Not Detected	1.3	Not Detected
Chloromethane	0.94	1.0	1.9	2.2
Vinyl Chloride	0.19	Not Detected	0.48	Not Detected
1,3-Butadiene	0.19	Not Detected	0.41	Not Detected
Bromomethane	0.94	Not Detected	3.6	Not Detected
Chloroethane	0.94	Not Detected	2.5	Not Detected
Freon 11	0.19	1.1	1.0	6.1
Ethanol	0.94	26	1.8	48
Freon 113	0.19	0.078 J	1.4	0.59 J
1,1-Dichloroethene	0.19	Not Detected	0.74	Not Detected
Acetone	0.94	12	2.2	27
2-Propanol	0.94	33	2.3	82
Carbon Disulfide	0.94	0.12 J	2.9	0.39 J
3-Chloropropene	0.94	Not Detected	2.9	Not Detected
Methylene Chloride	0.37	0.27 J	1.3	0.92 J
Methyl tert-butyl ether	0.19	Not Detected	0.67	Not Detected
trans-1,2-Dichloroethene	0.19	Not Detected	0.74	Not Detected
Hexane	0.19	0.13 J	0.66	0.46 J
1,1-Dichloroethane	0.19	Not Detected	0.76	Not Detected
2-Butanone (Methyl Ethyl Ketone)	0.94	1.0	2.8	3.0
cis-1,2-Dichloroethene	0.19	Not Detected	0.74	Not Detected
Tetrahydrofuran	0.94	Not Detected	2.8	Not Detected
Chloroform	0.19	Not Detected	0.91	Not Detected
1,1,1-Trichloroethane	0.19	Not Detected	1.0	Not Detected
Cyclohexane	0.19	0.14 J	0.64	0.48 J
Carbon Tetrachloride	0.19	0.085 J	1.2	0.53 J
2,2,4-Trimethylpentane	0.94	Not Detected	4.4	Not Detected
Benzene	0.19	0.093 J	0.60	0.30 J
1,2-Dichloroethane	0.19	0.12 J	0.76	0.49 J
Heptane	0.19	0.19 J	0.77	0.76 J
Trichloroethene	0.19	Not Detected	1.0	Not Detected
1,2-Dichloropropane	0.19	Not Detected	0.86	Not Detected
1,4-Dioxane	0.19	Not Detected	0.67	Not Detected
Bromodichloromethane	0.19	Not Detected	1.2	Not Detected
cis-1,3-Dichloropropene	0.19	Not Detected	0.85	Not Detected
4-Methyl-2-pentanone	0.19	0.074 J	0.77	0.30 J
Toluene	0.19	0.37	0.70	1.4
trans-1,3-Dichloropropene	0.19	Not Detected	0.85	Not Detected
1,1,2-Trichloroethane	0.19	Not Detected	1.0	Not Detected
Tetrachloroethene	0.19	Not Detected	1.3	Not Detected
2-Hexanone	0.94	Not Detected	3.8	Not Detected

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Client Sample ID: B7IA-3(061016)

Lab ID#: 1606298A-04A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**20061517**	**Date of Collection: 6/11/16 7:47:00 PM**	
Dil. Factor:	**1.87**	**Date of Analysis: 6/15/16 10:20 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	0.19	Not Detected	1.6	Not Detected
1,2-Dibromoethane (EDB)	0.19	Not Detected	1.4	Not Detected
Chlorobenzene	0.19	Not Detected	0.86	Not Detected
Ethyl Benzene	0.19	0.073 J	0.81	0.32 J
m,p-Xylene	0.19	0.16 J	0.81	0.69 J
o-Xylene	0.19	0.080 J	0.81	0.34 J
Styrene	0.19	0.11 J	0.80	0.46 J
Bromoform	0.19	Not Detected	1.9	Not Detected
Cumene	0.19	Not Detected	0.92	Not Detected
1,1,2,2-Tetrachloroethane	0.19	Not Detected	1.3	Not Detected
Propylbenzene	0.19	Not Detected	0.92	Not Detected
4-Ethyltoluene	0.19	0.10 J	0.92	0.50 J
1,3,5-Trimethylbenzene	0.19	0.055 J	0.92	0.27 J
1,2,4-Trimethylbenzene	0.19	0.12 J	0.92	0.62 J
1,3-Dichlorobenzene	0.19	Not Detected	1.1	Not Detected
1,4-Dichlorobenzene	0.19	Not Detected	1.1	Not Detected
alpha-Chlorotoluene	0.19	Not Detected	0.97	Not Detected
1,2-Dichlorobenzene	0.19	Not Detected	1.1	Not Detected
1,2,4-Trichlorobenzene	0.94	Not Detected	6.9	Not Detected
Hexachlorobutadiene	0.94	Not Detected	10	Not Detected
Naphthalene	0.94	0.060 J	4.9	0.31 J

J = Estimated value.

Container Type: 6 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	118	70-130
Toluene-d8	100	70-130
4-Bromofluorobenzene	96	70-130

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Client Sample ID: B7IA-4(061016)

Lab ID#: 1606298A-05A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**20061518**	**Date of Collection: 6/11/16 7:19:00 PM**	
Dil. Factor:	**1.59**	**Date of Analysis: 6/15/16 10:59 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.16	0.61	0.79	3.0
Freon 114	0.16	Not Detected	1.1	Not Detected
Chloromethane	0.80	1.1	1.6	2.2
Vinyl Chloride	0.16	Not Detected	0.41	Not Detected
1,3-Butadiene	0.16	Not Detected	0.35	Not Detected
Bromomethane	0.80	Not Detected	3.1	Not Detected
Chloroethane	0.80	Not Detected	2.1	Not Detected
Freon 11	0.16	10	0.89	57
Ethanol	0.80	3.1	1.5	5.8
Freon 113	0.16	0.10 J	1.2	0.77 J
1,1-Dichloroethene	0.16	Not Detected	0.63	Not Detected
Acetone	0.80	9.1	1.9	22
2-Propanol	0.80	2.2	2.0	5.4
Carbon Disulfide	0.80	Not Detected	2.5	Not Detected
3-Chloropropene	0.80	Not Detected	2.5	Not Detected
Methylene Chloride	0.32	0.25 J	1.1	0.86 J
Methyl tert-butyl ether	0.16	Not Detected	0.57	Not Detected
trans-1,2-Dichloroethene	0.16	Not Detected	0.63	Not Detected
Hexane	0.16	0.11 J	0.56	0.40 J
1,1-Dichloroethane	0.16	Not Detected	0.64	Not Detected
2-Butanone (Methyl Ethyl Ketone)	0.80	1.7	2.3	5.0
cis-1,2-Dichloroethene	0.16	Not Detected	0.63	Not Detected
Tetrahydrofuran	0.80	Not Detected	2.3	Not Detected
Chloroform	0.16	Not Detected	0.78	Not Detected
1,1,1-Trichloroethane	0.16	Not Detected	0.87	Not Detected
Cyclohexane	0.16	0.039 J	0.55	0.13 J
Carbon Tetrachloride	0.16	0.080 J	1.0	0.50 J
2,2,4-Trimethylpentane	0.80	Not Detected	3.7	Not Detected
Benzene	0.16	0.080 J	0.51	0.26 J
1,2-Dichloroethane	0.16	Not Detected	0.64	Not Detected
Heptane	0.16	0.14 J	0.65	0.59 J
Trichloroethene	0.16	Not Detected	0.85	Not Detected
1,2-Dichloropropane	0.16	Not Detected	0.73	Not Detected
1,4-Dioxane	0.16	Not Detected	0.57	Not Detected
Bromodichloromethane	0.16	Not Detected	1.1	Not Detected
cis-1,3-Dichloropropene	0.16	Not Detected	[illegible]	Not Detected
4-Methyl-2-pentanone	0.16	0.070 J	0.65	0.29 J
Toluene	0.16	0.55	0.60	2.1
trans-1,3-Dichloropropene	0.16	Not Detected	0.72	Not Detected
1,1,2-Trichloroethane	0.16	Not Detected	0.87	Not Detected
Tetrachloroethene	0.16	Not Detected	1.1	Not Detected
2-Hexanone	0.80	0.16 J	[illegible]	0.66 J

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Client Sample ID: B7IA-4(061016)

Lab ID#: 1606298A-05A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**20061518**	**Date of Collection:**	**6/11/16 7:19:00 PM**
Dil. Factor:	**1.59**	**Date of Analysis:**	**6/15/16 10:59 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	0.16	Not Detected	1.4	Not Detected
1,2-Dibromoethane (EDB)	0.16	Not Detected	1.2	Not Detected
Chlorobenzene	0.16	Not Detected	0.73	Not Detected
Ethyl Benzene	0.16	Not Detected	0.69	Not Detected
m,p-Xylene	0.16	0.11 J	0.69	0.48 J
o-Xylene	0.16	0.047 J	0.69	0.20 J
Styrene	0.16	0.043 J	0.68	0.18 J
Bromoform	0.16	Not Detected	1.6	Not Detected
Cumene	0.16	Not Detected	0.78	Not Detected
1,1,2,2-Tetrachloroethane	0.16	Not Detected	1.1	Not Detected
Propylbenzene	0.16	Not Detected	0.78	Not Detected
4-Ethyltoluene	0.16	0.036 J	0.78	0.18 J
1,3,5-Trimethylbenzene	0.16	Not Detected	0.78	Not Detected
1,2,4-Trimethylbenzene	0.16	0.046 J	0.78	0.22 J
1,3-Dichlorobenzene	0.16	Not Detected	0.96	Not Detected
1,4-Dichlorobenzene	0.16	Not Detected	0.96	Not Detected
alpha-Chlorotoluene	0.16	Not Detected	0.82	Not Detected
1,2-Dichlorobenzene	0.16	Not Detected	0.96	Not Detected
1,2,4-Trichlorobenzene	0.80	Not Detected	5.9	Not Detected
Hexachlorobutadiene	0.80	Not Detected	8.5	Not Detected
Naphthalene	0.80	0.024 J	4.2	0.12 J

J = Estimated value.

Container Type: 6 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	120	70-130
Toluene-d8	101	70-130
4-Bromofluorobenzene	96	70-130

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Client Sample ID: B7IA-5(061016)

Lab ID#: 1606298A-06A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**20061519**	**Date of Collection:**	**6/11/16 7:09:00 PM**
Dil. Factor:	**1.69**	**Date of Analysis:**	**6/16/16 08:28 AM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.17	0.61	0.84	3.0
Freon 114	0.17	Not Detected	1.2	Not Detected
Chloromethane	0.84	1.0	1.7	2.1
Vinyl Chloride	0.17	Not Detected	0.43	Not Detected
1,3-Butadiene	0.17	Not Detected	0.37	Not Detected
Bromomethane	0.84	Not Detected	3.3	Not Detected
Chloroethane	0.84	Not Detected	2.2	Not Detected
Freon 11	0.17	3.1	0.95	18
Ethanol	0.84	5.0	1.6	9.5
Freon 113	0.17	0.13 J	1.3	1.0 J
1,1-Dichloroethene	0.17	Not Detected	0.67	Not Detected
Acetone	0.84	8.9	2.0	21
2-Propanol	0.84	3.2	2.1	7.8
Carbon Disulfide	0.84	0.097 J	2.6	0.30 J
3-Chloropropene	0.84	Not Detected	2.6	Not Detected
Methylene Chloride	0.34	0.27 J	1.2	0.94 J
Methyl tert-butyl ether	0.17	Not Detected	0.61	Not Detected
trans-1,2-Dichloroethene	0.17	Not Detected	0.67	Not Detected
Hexane	0.17	0.078 J	0.60	0.28 J
1,1-Dichloroethane	0.17	Not Detected	0.68	Not Detected
2-Butanone (Methyl Ethyl Ketone)	0.84	1.7	2.5	5.1
cis-1,2-Dichloroethene	0.17	Not Detected	0.67	Not Detected
Tetrahydrofuran	0.84	Not Detected	2.5	Not Detected
Chloroform	0.17	0.066 J	0.82	0.32 J
1,1,1-Trichloroethane	0.17	Not Detected	0.92	Not Detected
Cyclohexane	0.17	Not Detected	0.58	Not Detected
Carbon Tetrachloride	0.17	0.073 J	1.1	0.46 J
2,2,4-Trimethylpentane	0.84	Not Detected	3.9	Not Detected
Benzene	0.17	0.091 J	0.54	0.29 J
1,2-Dichloroethane	0.17	Not Detected	0.68	Not Detected
Heptane	0.17	0.11 J	0.69	0.45 J
Trichloroethene	0.17	Not Detected	0.91	Not Detected
1,2-Dichloropropane	0.17	Not Detected	0.78	Not Detected
1,4-Dioxane	0.17	Not Detected	0.61	Not Detected
Bromodichloromethane	0.17	Not Detected	1.1	Not Detected
cis-1,3-Dichloropropene	0.17	Not Detected	0.77	Not Detected
4-Methyl-2-pentanone	0.17	0.083 J	0.69	0.34 J
Toluene	0.17	0.25	0.64	0.95
trans-1,3-Dichloropropene	0.17	Not Detected	0.77	Not Detected
1,1,2-Trichloroethane	0.17	Not Detected	0.92	Not Detected
Tetrachloroethene	0.17	Not Detected	1.1	Not Detected
2-Hexanone	0.84	0.26 J	3.5	1.0 J

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Client Sample ID: B7IA-5(061016)

Lab ID#: 1606298A-06A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**20061519**	**Date of Collection:**	**6/11/16 7:09:00 PM**
Dil. Factor:	**1.69**	**Date of Analysis:**	**6/16/16 08:28 AM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	0.17	Not Detected	1.4	Not Detected
1,2-Dibromoethane (EDB)	0.17	Not Detected	1.3	Not Detected
Chlorobenzene	0.17	Not Detected	0.78	Not Detected
Ethyl Benzene	0.17	Not Detected	0.73	Not Detected
m,p-Xylene	0.17	0.076 J	0.73	0.33 J
o-Xylene	0.17	Not Detected	0.73	Not Detected
Styrene	0.17	0.035 J	0.72	0.15 J
Bromoform	0.17	Not Detected	1.7	Not Detected
Cumene	0.17	Not Detected	0.83	Not Detected
1,1,2,2-Tetrachloroethane	0.17	Not Detected	1.2	Not Detected
Propylbenzene	0.17	Not Detected	0.83	Not Detected
4-Ethyltoluene	0.17	Not Detected	0.83	Not Detected
1,3,5-Trimethylbenzene	0.17	Not Detected	0.83	Not Detected
1,2,4-Trimethylbenzene	0.17	0.041 J	0.83	0.20 J
1,3-Dichlorobenzene	0.17	Not Detected	1.0	Not Detected
1,4-Dichlorobenzene	0.17	Not Detected	1.0	Not Detected
alpha-Chlorotoluene	0.17	Not Detected	0.87	Not Detected
1,2-Dichlorobenzene	0.17	Not Detected	1.0	Not Detected
1,2,4-Trichlorobenzene	0.84	Not Detected	6.3	Not Detected
Hexachlorobutadiene	0.84	Not Detected	9.0	Not Detected
Naphthalene	0.84	0.085 J	4.4	0.45 J

J = Estimated value.

Container Type: 6 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	118	70-130
Toluene-d8	100	70-130
4-Bromofluorobenzene	94	70-130

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Client Sample ID: B7IA-6(061016)

Lab ID#: 1606298A-07A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**20061520**	**Date of Collection: 6/11/16 7:37:00 PM**	
Dil. Factor:	**1.53**	**Date of Analysis: 6/16/16 09:07 AM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.15	0.60	0.76	3.0
Freon 114	0.15	Not Detected	1.1	Not Detected
Chloromethane	0.76	0.99	1.6	2.0
Vinyl Chloride	0.15	Not Detected	0.39	Not Detected
1,3-Butadiene	0.15	Not Detected	0.34	Not Detected
Bromomethane	0.76	Not Detected	3.0	Not Detected
Chloroethane	0.76	Not Detected	2.0	Not Detected
Freon 11	0.15	1.7	0.86	9.8
Ethanol	0.76	17	1.4	32
Freon 113	0.15	0.11 J	1.2	0.84 J
1,1-Dichloroethene	0.15	Not Detected	0.61	Not Detected
Acetone	0.76	5.8	1.8	14
2-Propanol	0.76	5.1	1.9	12
Carbon Disulfide	0.76	0.086 J	2.4	0.27 J
3-Chloropropene	0.76	Not Detected	2.4	Not Detected
Methylene Chloride	0.31	0.54	1.1	1.9
Methyl tert-butyl ether	0.15	Not Detected	0.55	Not Detected
trans-1,2-Dichloroethene	0.15	Not Detected	0.61	Not Detected
Hexane	0.15	0.17	0.54	0.59
1,1-Dichloroethane	0.15	Not Detected	0.62	Not Detected
2-Butanone (Methyl Ethyl Ketone)	0.76	2.0	2.2	6.0
cis-1,2-Dichloroethene	0.15	Not Detected	0.61	Not Detected
Tetrahydrofuran	0.76	Not Detected	2.2	Not Detected
Chloroform	0.15	0.057 J	0.75	0.28 J
1,1,1-Trichloroethane	0.15	Not Detected	0.83	Not Detected
Cyclohexane	0.15	0.13 J	0.53	0.43 J
Carbon Tetrachloride	0.15	0.079 J	0.96	0.50 J
2,2,4-Trimethylpentane	0.76	Not Detected	3.6	Not Detected
Benzene	0.15	0.11 J	0.49	0.35 J
1,2-Dichloroethane	0.15	Not Detected	0.62	Not Detected
Heptane	0.15	0.19	0.63	0.77
Trichloroethene	0.15	Not Detected	0.82	Not Detected
1,2-Dichloropropane	0.15	Not Detected	0.71	Not Detected
1,4-Dioxane	0.15	Not Detected	0.55	Not Detected
Bromodichloromethane	0.15	Not Detected	1.0	Not Detected
cis-1,3-Dichloropropene	0.15	Not Detected	0.69	Not Detected
4-Methyl-2-pentanone	0.15	0.077 J	0.63	[illegible]
Toluene	0.15	0.98	0.58	3.7
trans-1,3-Dichloropropene	0.15	Not Detected	0.69	Not Detected
1,1,2-Trichloroethane	0.15	Not Detected	0.83	Not Detected
Tetrachloroethene	0.15	Not Detected	1.0	Not Detected
2-Hexanone	0.76	0.15 J	3.1	0.62

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Client Sample ID: B7IA-6(061016)

Lab ID#: 1606298A-07A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**20061520**	**Date of Collection: 6/11/16 7:37:00 PM**	
Dil. Factor:	**1.53**	**Date of Analysis: 6/16/16 09:07 AM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	0.15	Not Detected	1.3	Not Detected
1,2-Dibromoethane (EDB)	0.15	Not Detected	1.2	Not Detected
Chlorobenzene	0.15	Not Detected	0.70	Not Detected
Ethyl Benzene	0.15	0.11 J	0.66	0.48 J
m,p-Xylene	0.15	0.29	0.66	1.2
o-Xylene	0.15	0.14 J	0.66	0.62 J
Styrene	0.15	0.18	0.65	0.78
Bromoform	0.15	Not Detected	1.6	Not Detected
Cumene	0.15	Not Detected	0.75	Not Detected
1,1,2,2-Tetrachloroethane	0.15	Not Detected	1.0	Not Detected
Propylbenzene	0.15	0.029 J	0.75	0.14 J
4-Ethyltoluene	0.15	0.13 J	0.75	0.66 J
1,3,5-Trimethylbenzene	0.15	0.066 J	0.75	0.32 J
1,2,4-Trimethylbenzene	0.15	0.24	0.75	1.2
1,3-Dichlorobenzene	0.15	Not Detected	0.92	Not Detected
1,4-Dichlorobenzene	0.15	Not Detected	0.92	Not Detected
alpha-Chlorotoluene	0.15	Not Detected	0.79	Not Detected
1,2-Dichlorobenzene	0.15	Not Detected	0.92	Not Detected
1,2,4-Trichlorobenzene	0.76	Not Detected	5.7	Not Detected
Hexachlorobutadiene	0.76	Not Detected	8.2	Not Detected
Naphthalene	0.76	0.16 J	4.0	0.83 J

J = Estimated value.

Container Type: 6 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	120	70-130
Toluene-d8	101	70-130
4-Bromofluorobenzene	93	70-130

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Client Sample ID: B7AA(061016)

Lab ID#: 1606298A-08A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**20061521**	**Date of Collection: 6/11/16 6:25:00 PM**	
Dil. Factor:	**1.88**	**Date of Analysis: 6/16/16 09:45 AM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.19	0.58	0.93	2.9
Freon 114	0.19	Not Detected	1.3	Not Detected
Chloromethane	0.94	0.91 J	1.9	1.9 J
Vinyl Chloride	0.19	Not Detected	0.48	Not Detected
1,3-Butadiene	0.19	Not Detected	0.42	Not Detected
Bromomethane	0.94	Not Detected	3.6	Not Detected
Chloroethane	0.94	Not Detected	2.5	Not Detected
Freon 11	0.19	0.28	1.0	1.6
Ethanol	0.94	0.94	1.8	1.8
Freon 113	0.19	0.12 J	1.4	0.93 J
1,1-Dichloroethene	0.19	Not Detected	0.74	Not Detected
Acetone	0.94	5.8	2.2	14
2-Propanol	0.94	0.63 J	2.3	1.6 J
Carbon Disulfide	0.94	Not Detected	2.9	Not Detected
3-Chloropropene	0.94	Not Detected	2.9	Not Detected
Methylene Chloride	0.38	0.24 J	1.3	0.83 J
Methyl tert-butyl ether	0.19	Not Detected	0.68	Not Detected
trans-1,2-Dichloroethene	0.19	Not Detected	0.74	Not Detected
Hexane	0.19	0.072 J	0.66	0.25 J
1,1-Dichloroethane	0.19	Not Detected	0.76	Not Detected
2-Butanone (Methyl Ethyl Ketone)	0.94	0.91 J	2.8	2.7 J
cis-1,2-Dichloroethene	0.19	Not Detected	0.74	Not Detected
Tetrahydrofuran	0.94	Not Detected	2.8	Not Detected
Chloroform	0.19	Not Detected	0.92	Not Detected
1,1,1-Trichloroethane	0.19	Not Detected	1.0	Not Detected
Cyclohexane	0.19	Not Detected	0.65	Not Detected
Carbon Tetrachloride	0.19	0.073 J	1.2	0.46 J
2,2,4-Trimethylpentane	0.94	Not Detected	4.4	Not Detected
Benzene	0.19	0.079 J	0.60	0.25 J
1,2-Dichloroethane	0.19	Not Detected	0.76	Not Detected
Heptane	0.19	Not Detected	0.77	Not Detected
Trichloroethene	0.19	Not Detected	1.0	Not Detected
1,2-Dichloropropane	0.19	Not Detected	0.87	Not Detected
1,4-Dioxane	0.19	0.14 J	0.68	0.52 J
Bromodichloromethane	0.19	Not Detected	1.2	Not Detected
cis-1,3-Dichloropropene	0.19	Not Detected	0.85	Not Detected
4-Methyl-2-pentanone	0.19	0.054 J	0.77	0.22 J
Toluene	0.19	0.15 J	0.71	0.56 J
trans-1,3-Dichloropropene	0.19	Not Detected	0.85	Not Detected
1,1,2-Trichloroethane	0.19	Not Detected	1.0	Not Detected
Tetrachloroethene	0.19	Not Detected	1.3	Not Detected
2-Hexanone	0.94	0.13 J	3.8	0.53 J

Rafael Infante Méndez
IC # 1888
QUIMICO LICENCIADO

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Client Sample ID: B7AA(061016)

Lab ID#: 1606298A-08A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**20061521**	**Date of Collection: 6/11/16 6:25:00 PM**	
Dil. Factor:	**1.88**	**Date of Analysis: 6/16/16 09:45 AM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	0.19	Not Detected	1.6	Not Detected
1,2-Dibromoethane (EDB)	0.19	Not Detected	1.4	Not Detected
Chlorobenzene	0.19	Not Detected	0.86	Not Detected
Ethyl Benzene	0.19	Not Detected	0.82	Not Detected
m,p-Xylene	0.19	0.063 J	0.82	0.28 J
o-Xylene	0.19	Not Detected	0.82	Not Detected
Styrene	0.19	Not Detected	0.80	Not Detected
Bromoform	0.19	Not Detected	1.9	Not Detected
Cumene	0.19	Not Detected	0.92	Not Detected
1,1,2,2-Tetrachloroethane	0.19	Not Detected	1.3	Not Detected
Propylbenzene	0.19	Not Detected	0.92	Not Detected
4-Ethyltoluene	0.19	Not Detected	0.92	Not Detected
1,3,5-Trimethylbenzene	0.19	Not Detected	0.92	Not Detected
1,2,4-Trimethylbenzene	0.19	Not Detected	0.92	Not Detected
1,3-Dichlorobenzene	0.19	Not Detected	1.1	Not Detected
1,4-Dichlorobenzene	0.19	Not Detected	1.1	Not Detected
alpha-Chlorotoluene	0.19	Not Detected	0.97	Not Detected
1,2-Dichlorobenzene	0.19	Not Detected	1.1	Not Detected
1,2,4-Trichlorobenzene	0.94	Not Detected	7.0	Not Detected
Hexachlorobutadiene	0.94	Not Detected	10	Not Detected
Naphthalene	0.94	0.063 J	4.9	0.33 J

J = Estimated value.

Container Type: 6 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	118	70-130
Toluene-d8	100	70-130
4-Bromofluorobenzene	93	70-130

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Client Sample ID: B7SS-1(061216)

Lab ID#: 1606298B-09A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	17061608	Date of Collection:	6/12/16 12:52:00 PM
Dil. Factor:	2.32	Date of Analysis:	6/16/16 07:02 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	1.2	Not Detected	5.7	Not Detected
Freon 114	1.2	Not Detected	8.1	Not Detected
Chloromethane	12	Not Detected UJ	24	Not Detected UJ
Vinyl Chloride	1.2	Not Detected	3.0	Not Detected
1,3-Butadiene	1.2	Not Detected	2.6	Not Detected
Bromomethane	12	Not Detected	45	Not Detected
Chloroethane	4.6	Not Detected	12	Not Detected
Freon 11	1.2	3.0	6.5	17
Ethanol	4.6	5.5 J0	8.7	10 J0
Freon 113	1.2	Not Detected	8.9	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.6	Not Detected
Acetone	12	54	28	130
2-Propanol	4.6	1.9 J	11	4.6 J
Carbon Disulfide	4.6	4.1 J	14	13 J
3-Chloropropene	4.6	Not Detected	14	Not Detected
Methylene Chloride	12	Not Detected	40	Not Detected
Methyl tert-butyl ether	1.2	Not Detected	4.2	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.6	Not Detected
Hexane	1.2	Not Detected	4.1	Not Detected
1,1-Dichloroethane	1.2	Not Detected	4.7	Not Detected
2-Butanone (Methyl Ethyl Ketone)	4.6	2.9 J	14	8.6 J
cis-1,2-Dichloroethene	1.2	Not Detected	4.6	Not Detected
Tetrahydrofuran	1.2	Not Detected	3.4	Not Detected
Chloroform	1.2	Not Detected	5.7	Not Detected
1,1,1-Trichloroethane	1.2	Not Detected	6.3	Not Detected
Cyclohexane	1.2	Not Detected	4.0	Not Detected
Carbon Tetrachloride	1.2	Not Detected	7.3	Not Detected
2,2,4-Trimethylpentane	1.2	Not Detected	5.4	Not Detected
Benzene	1.2	Not Detected	3.7	Not Detected
1,2-Dichloroethane	1.2	Not Detected	4.7	Not Detected
Heptane	1.2	0.24 J	4.8	0.99 J
Trichloroethene	1.2	Not Detected	6.2	Not Detected
1,2-Dichloropropane	1.2	Not Detected	5.4	Not Detected
1,4-Dioxane	4.6	Not Detected	17	Not Detected
Bromodichloromethane	1.2	Not Detected	7.8	Not Detected
cis-1,3-Dichloropropene	1.2	Not Detected	5.3	Not Detected
4-Methyl-2-pentanone	1.2	Not Detected	4.8	Not Detected
Toluene	1.2	1.1 J	4.4	4.[illegible]
trans-1,3-Dichloropropene	1.2	Not Detected	5.3	Not Detected
1,1,2-Trichloroethane	1.2	Not Detected	6.3	Not Detected
Tetrachloroethene	1.2	Not Detected	7.9	Not Detected
2-Hexanone	4.6	0.22 J	19	0.91 J

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Client Sample ID: B7SS-1(061216)
Lab ID#: 1606298B-09A
EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	17061608	**Date of Collection:**	6/12/16 12:52:00 PM
Dil. Factor:	2.32	**Date of Analysis:**	6/16/16 07:02 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	1.2	Not Detected	9.9	Not Detected
1,2-Dibromoethane (EDB)	1.2	Not Detected	8.9	Not Detected
Chlorobenzene	1.2	Not Detected	5.3	Not Detected
Ethyl Benzene	1.2	Not Detected	5.0	Not Detected
m,p-Xylene	1.2	0.37 J	5.0	1.6 J
o-Xylene	1.2	Not Detected	5.0	Not Detected
Styrene	1.2	Not Detected	4.9	Not Detected
Bromoform	1.2	Not Detected	12	Not Detected
Cumene	1.2	Not Detected	5.7	Not Detected
1,1,2,2-Tetrachloroethane	1.2	Not Detected	8.0	Not Detected
Propylbenzene	1.2	Not Detected	5.7	Not Detected
4-Ethyltoluene	1.2	Not Detected	5.7	Not Detected
1,3,5-Trimethylbenzene	1.2	Not Detected	5.7	Not Detected
1,2,4-Trimethylbenzene	1.2	Not Detected	5.7	Not Detected
1,3-Dichlorobenzene	1.2	Not Detected	7.0	Not Detected
1,4-Dichlorobenzene	1.2	Not Detected	7.0	Not Detected
alpha-Chlorotoluene	1.2	Not Detected	6.0	Not Detected
1,2-Dichlorobenzene	1.2	Not Detected	7.0	Not Detected
1,2,4-Trichlorobenzene	4.6	Not Detected	34	Not Detected
Hexachlorobutadiene	4.6	Not Detected	49	Not Detected
Naphthalene	2.3	Not Detected	12	Not Detected

UJ = Analyte associated with low bias in the CCV.
J0 = Estimated value due to bias in the CCV.
J = Estimated value.
Container Type: 1 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
Toluene-d8	102	70-130
1,2-Dichloroethane-d4	92	70-130
4-Bromofluorobenzene	100	70-130

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Client Sample ID: B7SS-1D(061216)
Lab ID#: 1606298B-10A
EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17061609**	**Date of Collection:**	**6/12/16 12:51:00 PM**
Dil. Factor:	**2.48**	**Date of Analysis:**	**6/16/16 07:28 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	1.2	Not Detected	6.1	Not Detected
Freon 114	1.2	Not Detected	8.7	Not Detected
Chloromethane	12	Not Detected UJ	26	Not Detected UJ
Vinyl Chloride	1.2	Not Detected	3.2	Not Detected
1,3-Butadiene	1.2	Not Detected	2.7	Not Detected
Bromomethane	12	Not Detected	48	Not Detected
Chloroethane	5.0	Not Detected	13	Not Detected
Freon 11	1.2	2.9	7.0	16
Ethanol	5.0	Not Detected UJ	9.3	Not Detected UJ
Freon 113	1.2	Not Detected	9.5	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.9	Not Detected
Acetone	12	13	29	31
2-Propanol	5.0	0.92 J	12	2.3 J
Carbon Disulfide	5.0	Not Detected	15	Not Detected
3-Chloropropene	5.0	Not Detected	16	Not Detected
Methylene Chloride	12	Not Detected	43	Not Detected
Methyl tert-butyl ether	1.2	Not Detected	4.5	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.9	Not Detected
Hexane	1.2	Not Detected	4.4	Not Detected
1,1-Dichloroethane	1.2	Not Detected	5.0	Not Detected
2-Butanone (Methyl Ethyl Ketone)	5.0	2.3 J	15	6.7 J
cis-1,2-Dichloroethene	1.2	Not Detected	4.9	Not Detected
Tetrahydrofuran	1.2	Not Detected	3.6	Not Detected
Chloroform	1.2	Not Detected	6.0	Not Detected
1,1,1-Trichloroethane	1.2	Not Detected	6.8	Not Detected
Cyclohexane	1.2	Not Detected	4.3	Not Detected
Carbon Tetrachloride	1.2	Not Detected	7.8	Not Detected
2,2,4-Trimethylpentane	1.2	Not Detected	5.8	Not Detected
Benzene	1.2	Not Detected	4.0	Not Detected
1,2-Dichloroethane	1.2	Not Detected	5.0	Not Detected
Heptane	1.2	0.27 J	5.1	1.1 J
Trichloroethene	1.2	0.59 J	6.7	3.2 J
1,2-Dichloropropane	1.2	Not Detected	5.7	Not Detected
1,4-Dioxane	5.0	Not Detected	18	Not Detected
Bromodichloromethane	1.2	Not Detected	8.3	Not Detected
cis-1,3-Dichloropropene	1.2	Not Detected	5.6	Not Detected
4-Methyl-2-pentanone	1.2	Not Detected	5.1	Not Detected
Toluene	1.2	1.1 J	4.7	[illegible]
trans-1,3-Dichloropropene	1.2	Not Detected	5.6	Not Detected
1,1,2-Trichloroethane	1.2	Not Detected	6.8	Not Detected
Tetrachloroethene	1.2	Not Detected	8.4	Not Detected
2-Hexanone	5.0	Not Detected	20	Not Detected

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Client Sample ID: B7SS-1D(061216)

Lab ID#: 1606298B-10A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	17061609	Date of Collection:	6/12/16 12:51:00 PM
Dil. Factor:	2.48	Date of Analysis:	6/16/16 07:28 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	1.2	Not Detected	10	Not Detected
1,2-Dibromoethane (EDB)	1.2	Not Detected	9.5	Not Detected
Chlorobenzene	1.2	Not Detected	5.7	Not Detected
Ethyl Benzene	1.2	Not Detected	5.4	Not Detected
m,p-Xylene	1.2	0.35 J	5.4	1.5 J
o-Xylene	1.2	Not Detected	5.4	Not Detected
Styrene	1.2	Not Detected	5.3	Not Detected
Bromoform	1.2	Not Detected	13	Not Detected
Cumene	1.2	0.90 J	6.1	4.4 J
1,1,2,2-Tetrachloroethane	1.2	Not Detected	8.5	Not Detected
Propylbenzene	1.2	Not Detected	6.1	Not Detected
4-Ethyltoluene	1.2	Not Detected	6.1	Not Detected
1,3,5-Trimethylbenzene	1.2	Not Detected	6.1	Not Detected
1,2,4-Trimethylbenzene	1.2	Not Detected	6.1	Not Detected
1,3-Dichlorobenzene	1.2	Not Detected	7.4	Not Detected
1,4-Dichlorobenzene	1.2	Not Detected	7.4	Not Detected
alpha-Chlorotoluene	1.2	Not Detected	6.4	Not Detected
1,2-Dichlorobenzene	1.2	Not Detected	7.4	Not Detected
1,2,4-Trichlorobenzene	5.0	Not Detected	37	Not Detected
Hexachlorobutadiene	5.0	Not Detected	53	Not Detected
Naphthalene	2.5	Not Detected	13	Not Detected

UJ = Analyte associated with low bias in the CCV.
J = Estimated value.
Container Type: 1 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
Toluene-d8	101	70-130
1,2-Dichloroethane-d4	91	70-130
4-Bromofluorobenzene	102	70-130

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Client Sample ID: B7SS-2(061216)

Lab ID#: 1606298B-11A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	17061610	**Date of Collection:**	6/12/16 1:47:00 PM
Dil. Factor:	2.32	**Date of Analysis:**	6/16/16 07:54 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	1.2	Not Detected	5.7	Not Detected
Freon 114	1.2	Not Detected	8.1	Not Detected
Chloromethane	12	Not Detected UJ	24	Not Detected UJ
Vinyl Chloride	1.2	Not Detected	3.0	Not Detected
1,3-Butadiene	1.2	Not Detected	2.6	Not Detected
Bromomethane	12	Not Detected	45	Not Detected
Chloroethane	4.6	Not Detected	12	Not Detected
Freon 11	1.2	3.8	6.5	21
Ethanol	4.6	32 J0	8.7	60 J0
Freon 113	1.2	Not Detected	8.9	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.6	Not Detected
Acetone	12	43	28	100
2-Propanol	4.6	4.6	11	11
Carbon Disulfide	4.6	3.1 J	14	9.7 J
3-Chloropropene	4.6	Not Detected	14	Not Detected
Methylene Chloride	12	Not Detected	40	Not Detected
Methyl tert-butyl ether	1.2	Not Detected	4.2	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.6	Not Detected
Hexane	1.2	Not Detected	4.1	Not Detected
1,1-Dichloroethane	1.2	Not Detected	4.7	Not Detected
2-Butanone (Methyl Ethyl Ketone)	4.6	5.9	14	17
cis-1,2-Dichloroethene	1.2	Not Detected	4.6	Not Detected
Tetrahydrofuran	1.2	Not Detected	3.4	Not Detected
Chloroform	1.2	Not Detected	5.7	Not Detected
1,1,1-Trichloroethane	1.2	Not Detected	6.3	Not Detected
Cyclohexane	1.2	Not Detected	4.0	Not Detected
Carbon Tetrachloride	1.2	Not Detected	7.3	Not Detected
2,2,4-Trimethylpentane	1.2	Not Detected	5.4	Not Detected
Benzene	1.2	0.63 J	3.7	2.0 J
1,2-Dichloroethane	1.2	Not Detected	4.7	Not Detected
Heptane	1.2	3.4	4.8	14
Trichloroethene	1.2	Not Detected	6.2	Not Detected
1,2-Dichloropropane	1.2	Not Detected	5.4	Not Detected
1,4-Dioxane	4.6	Not Detected	17	Not Detected
Bromodichloromethane	1.2	Not Detected	7.8	Not Detected
cis-1,3-Dichloropropene	1.2	Not Detected	5.3	Not Detected
4-Methyl-2-pentanone	1.2	Not Detected	4.8	Not Detected
Toluene	1.2	0.44 J	4.4	[illegible]
trans-1,3-Dichloropropene	1.2	Not Detected	5.3	Not Detected
1,1,2-Trichloroethane	1.2	Not Detected	6.3	Not Detected
Tetrachloroethene	1.2	Not Detected	7.9	Not Detected
2-Hexanone	4.6	0.34 J	19	1.4 J

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Client Sample ID: B7SS-2(061216)

Lab ID#: 1606298B-11A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17061610**	**Date of Collection:**	**6/12/16 1:47:00 PM**
Dil. Factor:	**2.32**	**Date of Analysis:**	**6/16/16 07:54 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	1.2	Not Detected	9.9	Not Detected
1,2-Dibromoethane (EDB)	1.2	Not Detected	8.9	Not Detected
Chlorobenzene	1.2	Not Detected	5.3	Not Detected
Ethyl Benzene	1.2	0.62 J	5.0	2.7 J
m,p-Xylene	1.2	1.6	5.0	6.8
o-Xylene	1.2	0.27 J	5.0	1.2 J
Styrene	1.2	4.0	4.9	17
Bromoform	1.2	Not Detected	12	Not Detected
Cumene	1.2	Not Detected	5.7	Not Detected
1,1,2,2-Tetrachloroethane	1.2	Not Detected	8.0	Not Detected
Propylbenzene	1.2	Not Detected	5.7	Not Detected
4-Ethyltoluene	1.2	Not Detected	5.7	Not Detected
1,3,5-Trimethylbenzene	1.2	Not Detected	5.7	Not Detected
1,2,4-Trimethylbenzene	1.2	Not Detected	5.7	Not Detected
1,3-Dichlorobenzene	1.2	Not Detected	7.0	Not Detected
1,4-Dichlorobenzene	1.2	Not Detected	7.0	Not Detected
alpha-Chlorotoluene	1.2	Not Detected	6.0	Not Detected
1,2-Dichlorobenzene	1.2	Not Detected	7.0	Not Detected
1,2,4-Trichlorobenzene	4.6	Not Detected	34	Not Detected
Hexachlorobutadiene	4.6	Not Detected	49	Not Detected
Naphthalene	2.3	Not Detected	12	Not Detected

UJ = Analyte associated with low bias in the CCV.
J0 = Estimated value due to bias in the CCV.
J = Estimated value.

Container Type: 1 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
Toluene-d8	101	70-130
1,2-Dichloroethane-d4	91	70-130
4-Bromofluorobenzene	100	70-130

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Client Sample ID: B7SS-3(061216)

Lab ID#: 1606298B-12A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	17061611	**Date of Collection:**	6/12/16 5:05:00 PM
Dil. Factor:	2.20	**Date of Analysis:**	6/16/16 08:20 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	1.1	Not Detected	5.4	Not Detected
Freon 114	1.1	Not Detected	7.7	Not Detected
Chloromethane	11	Not Detected UJ	23	Not Detected UJ
Vinyl Chloride	1.1	Not Detected	2.8	Not Detected
1,3-Butadiene	1.1	Not Detected	2.4	Not Detected
Bromomethane	11	Not Detected	43	Not Detected
Chloroethane	4.4	Not Detected	12	Not Detected
Freon 11	1.1	1.1	6.2	6.4
Ethanol	4.4	7.8 J0	8.3	15 J0
Freon 113	1.1	Not Detected	8.4	Not Detected
1,1-Dichloroethene	1.1	Not Detected	4.4	Not Detected
Acetone	11	13	26	31
2-Propanol	4.4	6.0	11	15
Carbon Disulfide	4.4	5.9	14	18
3-Chloropropene	4.4	Not Detected	14	Not Detected
Methylene Chloride	11	Not Detected	38	Not Detected
Methyl tert-butyl ether	1.1	Not Detected	4.0	Not Detected
trans-1,2-Dichloroethene	1.1	Not Detected	4.4	Not Detected
Hexane	1.1	Not Detected	3.9	Not Detected
1,1-Dichloroethane	1.1	Not Detected	4.4	Not Detected
2-Butanone (Methyl Ethyl Ketone)	4.4	3.0 J	13	8.8 J
cis-1,2-Dichloroethene	1.1	Not Detected	4.4	Not Detected
Tetrahydrofuran	1.1	Not Detected	3.2	Not Detected
Chloroform	1.1	Not Detected	5.4	Not Detected
1,1,1-Trichloroethane	1.1	Not Detected	6.0	Not Detected
Cyclohexane	1.1	Not Detected	3.8	Not Detected
Carbon Tetrachloride	1.1	Not Detected	6.9	Not Detected
2,2,4-Trimethylpentane	1.1	0.17 J	5.1	0.78 J
Benzene	1.1	0.22 J	3.5	0.69 J
1,2-Dichloroethane	1.1	Not Detected	4.4	Not Detected
Heptane	1.1	2.1	4.5	8.5
Trichloroethene	1.1	Not Detected	5.9	Not Detected
1,2-Dichloropropane	1.1	Not Detected	5.1	Not Detected
1,4-Dioxane	4.4	Not Detected	16	Not Detected
Bromodichloromethane	1.1	Not Detected	7.4	Not Detected
cis-1,3-Dichloropropene	1.1	Not Detected	5.0	Not Detected
4-Methyl-2-pentanone	1.1	Not Detected	4.5	Not Detected
Toluene	1.1	2.1	4.1	8.1
trans-1,3-Dichloropropene	1.1	Not Detected	5.0	Not Detected
1,1,2-Trichloroethane	1.1	Not Detected	6.0	Not Detected
Tetrachloroethene	1.1	Not Detected	7.5	Not Detected
2-Hexanone	4.4	0.32 J	18	1.3

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Client Sample ID: B7SS-3(061216)

Lab ID#: 1606298B-12A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17061611**	**Date of Collection: 6/12/16 5:05:00 PM**	
Dil. Factor:	**2.20**	**Date of Analysis: 6/16/16 08:20 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	1.1	Not Detected	9.4	Not Detected
1,2-Dibromoethane (EDB)	1.1	Not Detected	8.4	Not Detected
Chlorobenzene	1.1	Not Detected	5.1	Not Detected
Ethyl Benzene	1.1	0.40 J	4.8	1.7 J
m,p-Xylene	1.1	0.83 J	4.8	3.6 J
o-Xylene	1.1	0.29 J	4.8	1.3 J
Styrene	1.1	0.51 J	4.7	2.2 J
Bromoform	1.1	Not Detected	11	Not Detected
Cumene	1.1	Not Detected	5.4	Not Detected
1,1,2,2-Tetrachloroethane	1.1	Not Detected	7.6	Not Detected
Propylbenzene	1.1	Not Detected	5.4	Not Detected
4-Ethyltoluene	1.1	0.16 J	5.4	0.81 J
1,3,5-Trimethylbenzene	1.1	Not Detected	5.4	Not Detected
1,2,4-Trimethylbenzene	1.1	Not Detected	5.4	Not Detected
1,3-Dichlorobenzene	1.1	Not Detected	6.6	Not Detected
1,4-Dichlorobenzene	1.1	Not Detected	6.6	Not Detected
alpha-Chlorotoluene	1.1	Not Detected	5.7	Not Detected
1,2-Dichlorobenzene	1.1	Not Detected	6.6	Not Detected
1,2,4-Trichlorobenzene	4.4	Not Detected	33	Not Detected
Hexachlorobutadiene	4.4	Not Detected	47	Not Detected
Naphthalene	2.2	Not Detected	12	Not Detected

UJ = Analyte associated with low bias in the CCV.
J0 = Estimated value due to bias in the CCV.
J = Estimated value.
Container Type: 1 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
Toluene-d8	101	70-130
1,2-Dichloroethane-d4	92	70-130
4-Bromofluorobenzene	100	70-130

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Client Sample ID: B7SS-4(061216)

Lab ID#: 1606298B-13A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17061612**	**Date of Collection: 6/12/16 4:20:00 PM**	
Dil. Factor:	**2.41**	**Date of Analysis: 6/16/16 08:47 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	1.2	Not Detected	6.0	Not Detected
Freon 114	1.2	Not Detected	8.4	Not Detected
Chloromethane	12	Not Detected UJ	25	Not Detected UJ
Vinyl Chloride	1.2	Not Detected	3.1	Not Detected
1,3-Butadiene	1.2	Not Detected	2.7	Not Detected
Bromomethane	12	Not Detected	47	Not Detected
Chloroethane	4.8	Not Detected	13	Not Detected
Freon 11	1.2	4.1	6.8	23
Ethanol	4.8	22 J0	9.1	40 J0
Freon 113	1.2	Not Detected	9.2	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.8	Not Detected
Acetone	12	46	29	110
2-Propanol	4.8	2.5 J	12	6.2 J
Carbon Disulfide	4.8	6.6	15	21
3-Chloropropene	4.8	Not Detected	15	Not Detected
Methylene Chloride	12	Not Detected	42	Not Detected
Methyl tert-butyl ether	1.2	Not Detected	4.3	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.8	Not Detected
Hexane	1.2	0.34 J	4.2	1.2 J
1,1-Dichloroethane	1.2	Not Detected	4.9	Not Detected
2-Butanone (Methyl Ethyl Ketone)	4.8	3.1 J	14	9.2 J
cis-1,2-Dichloroethene	1.2	Not Detected	4.8	Not Detected
Tetrahydrofuran	1.2	Not Detected	3.6	Not Detected
Chloroform	1.2	Not Detected	5.9	Not Detected
1,1,1-Trichloroethane	1.2	Not Detected	6.6	Not Detected
Cyclohexane	1.2	Not Detected	4.1	Not Detected
Carbon Tetrachloride	1.2	Not Detected	7.6	Not Detected
2,2,4-Trimethylpentane	1.2	Not Detected	5.6	Not Detected
Benzene	1.2	Not Detected	3.8	Not Detected
1,2-Dichloroethane	1.2	Not Detected	4.9	Not Detected
Heptane	1.2	2.3	4.9	9.4
Trichloroethene	1.2	Not Detected	6.5	Not Detected
1,2-Dichloropropane	1.2	Not Detected	5.6	Not Detected
1,4-Dioxane	4.8	Not Detected	17	Not Detected
Bromodichloromethane	1.2	Not Detected	8.1	Not Detected
cis-1,3-Dichloropropene	1.2	Not Detected	5.5	Not Detected
4-Methyl-2-pentanone	1.2	0.29 J	4.9	1.2 J
Toluene	1.2	0.35 J	4.5	1.3 J
trans-1,3-Dichloropropene	1.2	Not Detected	5.5	Not Detected
1,1,2-Trichloroethane	1.2	Not Detected	6.6	Not Detected
Tetrachloroethene	1.2	Not Detected	8.2	Not Detected
2-Hexanone	4.8	0.30 J	20	1.2 J

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Client Sample ID: B7SS-4(061216)

Lab ID#: 1606298B-13A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17061612**	**Date of Collection:**	**6/12/16 4:20:00 PM**
Dil. Factor:	**2.41**	**Date of Analysis:**	**6/16/16 08:47 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	1.2	Not Detected	10	Not Detected
1,2-Dibromoethane (EDB)	1.2	Not Detected	9.2	Not Detected
Chlorobenzene	1.2	Not Detected	5.5	Not Detected
Ethyl Benzene	1.2	Not Detected	5.2	Not Detected
m,p-Xylene	1.2	0.22 J	5.2	0.96 J
o-Xylene	1.2	Not Detected	5.2	Not Detected
Styrene	1.2	0.22 J	5.1	0.96 J
Bromoform	1.2	Not Detected	12	Not Detected
Cumene	1.2	Not Detected	5.9	Not Detected
1,1,2,2-Tetrachloroethane	1.2	Not Detected	8.3	Not Detected
Propylbenzene	1.2	Not Detected	5.9	Not Detected
4-Ethyltoluene	1.2	Not Detected	5.9	Not Detected
1,3,5-Trimethylbenzene	1.2	Not Detected	5.9	Not Detected
1,2,4-Trimethylbenzene	1.2	Not Detected	5.9	Not Detected
1,3-Dichlorobenzene	1.2	Not Detected	7.2	Not Detected
1,4-Dichlorobenzene	1.2	Not Detected	7.2	Not Detected
alpha-Chlorotoluene	1.2	Not Detected	6.2	Not Detected
1,2-Dichlorobenzene	1.2	Not Detected	7.2	Not Detected
1,2,4-Trichlorobenzene	4.8	Not Detected	36	Not Detected
Hexachlorobutadiene	4.8	Not Detected	51	Not Detected
Naphthalene	2.4	Not Detected	13	Not Detected

UJ = Analyte associated with low bias in the CCV.
J0 = Estimated value due to bias in the CCV.
J = Estimated value.
Container Type: 1 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
Toluene-d8	102	70-130
1,2-Dichloroethane-d4	93	70-130
4-Bromofluorobenzene	102	70-130

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Client Sample ID: B7SS-5(061216)

Lab ID#: 1606298B-14A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	17061613	Date of Collection:	6/12/16 11:16:00 AM
Dil. Factor:	2.29	Date of Analysis:	6/16/16 09:13 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	1.1	0.31 J	5.7	1.6 J
Freon 114	1.1	Not Detected	8.0	Not Detected
Chloromethane	11	Not Detected UJ	24	Not Detected UJ
Vinyl Chloride	1.1	Not Detected	2.9	Not Detected
1,3-Butadiene	1.1	Not Detected	2.5	Not Detected
Bromomethane	11	Not Detected	44	Not Detected
Chloroethane	4.6	Not Detected	12	Not Detected
Freon 11	1.1	2.9	6.4	16
Ethanol	4.6	Not Detected UJ	8.6	Not Detected UJ
Freon 113	1.1	Not Detected	8.8	Not Detected
1,1-Dichloroethene	1.1	Not Detected	4.5	Not Detected
Acetone	11	8.2 J	27	20 J
2-Propanol	4.6	1.2 J	11	2.8 J
Carbon Disulfide	4.6	0.19 J	14	0.58 J
3-Chloropropene	4.6	Not Detected	14	Not Detected
Methylene Chloride	11	Not Detected	40	Not Detected
Methyl tert-butyl ether	1.1	Not Detected	4.1	Not Detected
trans-1,2-Dichloroethene	1.1	Not Detected	4.5	Not Detected
Hexane	1.1	Not Detected	4.0	Not Detected
1,1-Dichloroethane	1.1	Not Detected	4.6	Not Detected
2-Butanone (Methyl Ethyl Ketone)	4.6	2.0 J	14	5.8 J
cis-1,2-Dichloroethene	1.1	Not Detected	4.5	Not Detected
Tetrahydrofuran	1.1	Not Detected	3.4	Not Detected
Chloroform	1.1	Not Detected	5.6	Not Detected
1,1,1-Trichloroethane	1.1	Not Detected	6.2	Not Detected
Cyclohexane	1.1	Not Detected	3.9	Not Detected
Carbon Tetrachloride	1.1	Not Detected	7.2	Not Detected
2,2,4-Trimethylpentane	1.1	Not Detected	5.3	Not Detected
Benzene	1.1	Not Detected	3.6	Not Detected
1,2-Dichloroethane	1.1	Not Detected	4.6	Not Detected
Heptane	1.1	2.1	4.7	8.6
Trichloroethene	1.1	Not Detected	6.2	Not Detected
1,2-Dichloropropane	1.1	Not Detected	5.3	Not Detected
1,4-Dioxane	4.6	Not Detected	16	Not Detected
Bromodichloromethane	1.1	Not Detected	7.7	Not Detected
cis-1,3-Dichloropropene	1.1	Not Detected	5.2	Not Detected
4-Methyl-2-pentanone	1.1	Not Detected	4.7	Not Detected
Toluene	1.1	1.5	4.3	5.5
trans-1,3-Dichloropropene	1.1	Not Detected	5.2	Not Detected
1,1,2-Trichloroethane	1.1	Not Detected	6.2	Not Detected
Tetrachloroethene	1.1	Not Detected	7.8	Not Detected
2-Hexanone	4.6	0.31 J	19	1.3 J

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Client Sample ID: B7SS-5(061216)

Lab ID#: 1606298B-14A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17061613**	**Date of Collection: 6/12/16 11:16:00 AM**	
Dil. Factor:	**2.29**	**Date of Analysis: 6/16/16 09:13 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	1.1	Not Detected	9.8	Not Detected
1,2-Dibromoethane (EDB)	1.1	Not Detected	8.8	Not Detected
Chlorobenzene	1.1	Not Detected	5.3	Not Detected
Ethyl Benzene	1.1	0.35 J	5.0	1.5 J
m,p-Xylene	1.1	1.5	5.0	6.4
o-Xylene	1.1	0.58 J	5.0	2.5 J
Styrene	1.1	0.40 J	4.9	1.7 J
Bromoform	1.1	Not Detected	12	Not Detected
Cumene	1.1	Not Detected	5.6	Not Detected
1,1,2,2-Tetrachloroethane	1.1	Not Detected	7.9	Not Detected
Propylbenzene	1.1	Not Detected	5.6	Not Detected
4-Ethyltoluene	1.1	0.62 J	5.6	3.0 J
1,3,5-Trimethylbenzene	1.1	Not Detected	5.6	Not Detected
1,2,4-Trimethylbenzene	1.1	0.62 J	5.6	3.1 J
1,3-Dichlorobenzene	1.1	Not Detected	6.9	Not Detected
1,4-Dichlorobenzene	1.1	Not Detected	6.9	Not Detected
alpha-Chlorotoluene	1.1	Not Detected	5.9	Not Detected
1,2-Dichlorobenzene	1.1	Not Detected	6.9	Not Detected
1,2,4-Trichlorobenzene	4.6	Not Detected	34	Not Detected
Hexachlorobutadiene	4.6	Not Detected	49	Not Detected
Naphthalene	2.3	Not Detected	12	Not Detected

J = Estimated value.
UJ = Analyte associated with low bias in the CCV.
Container Type: 1 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
Toluene-d8	100	70-130
1,2-Dichloroethane-d4	93	70-130
4-Bromofluorobenzene	102	70-130

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Client Sample ID: B7SS-6(061216)

Lab ID#: 1606298B-15A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17061614**	**Date of Collection: 6/12/16 5:48:00 PM**	
Dil. Factor:	**2.42**	**Date of Analysis: 6/16/16 09:40 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	1.2	Not Detected	6.0	Not Detected
Freon 114	1.2	Not Detected	8.4	Not Detected
Chloromethane	12	Not Detected UJ	25	Not Detected UJ
Vinyl Chloride	1.2	Not Detected	3.1	Not Detected
1,3-Butadiene	1.2	Not Detected	2.7	Not Detected
Bromomethane	12	Not Detected	47	Not Detected
Chloroethane	4.8	Not Detected	13	Not Detected
Freon 11	1.2	0.33 J	6.8	1.9 J
Ethanol	4.8	Not Detected UJ	9.1	Not Detected UJ
Freon 113	1.2	Not Detected	9.3	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.8	Not Detected
Acetone	12	25	29	60
2-Propanol	4.8	5.0	12	12
Carbon Disulfide	4.8	6.2	15	19
3-Chloropropene	4.8	Not Detected	15	Not Detected
Methylene Chloride	12	0.40 J	42	1.4 J
Methyl tert-butyl ether	1.2	Not Detected	4.4	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.8	Not Detected
Hexane	1.2	Not Detected	4.3	Not Detected
1,1-Dichloroethane	1.2	Not Detected	4.9	Not Detected
2-Butanone (Methyl Ethyl Ketone)	4.8	2.5 J	14	7.5 J
cis-1,2-Dichloroethene	1.2	Not Detected	4.8	Not Detected
Tetrahydrofuran	1.2	Not Detected	3.6	Not Detected
Chloroform	1.2	0.94 J	5.9	4.6 J
1,1,1-Trichloroethane	1.2	Not Detected	6.6	Not Detected
Cyclohexane	1.2	Not Detected	4.2	Not Detected
Carbon Tetrachloride	1.2	Not Detected	7.6	Not Detected
2,2,4-Trimethylpentane	1.2	Not Detected	5.6	Not Detected
Benzene	1.2	Not Detected	3.9	Not Detected
1,2-Dichloroethane	1.2	Not Detected	4.9	Not Detected
Heptane	1.2	1.2	5.0	5.0
Trichloroethene	1.2	0.23 J	6.5	1.2 J
1,2-Dichloropropane	1.2	Not Detected	5.6	Not Detected
1,4-Dioxane	4.8	Not Detected	17	Not Detected
Bromodichloromethane	1.2	Not Detected	8.1	Not Detected
cis-1,3-Dichloropropene	1.2	Not Detected	5.5	Not Detected
4-Methyl-2-pentanone	1.2	Not Detected	5.0	Not Detected
Toluene	1.2	0.36 J	[illegible]	3 J
trans-1,3-Dichloropropene	1.2	Not Detected	5.5	Not Detected
1,1,2-Trichloroethane	1.2	Not Detected	6.6	Not Detected
Tetrachloroethene	1.2	Not Detected	8.2	Not Detected
2-Hexanone	4.8	0.33 J	20	1.4 J

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Client Sample ID: B7SS-6(061216)

Lab ID#: 1606298B-15A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17061614**	**Date of Collection: 6/12/16 5:48:00 PM**	
Dil. Factor:	**2.42**	**Date of Analysis: 6/16/16 09:40 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	1.2	Not Detected	10	Not Detected
1,2-Dibromoethane (EDB)	1.2	Not Detected	9.3	Not Detected
Chlorobenzene	1.2	Not Detected	5.6	Not Detected
Ethyl Benzene	1.2	Not Detected	5.2	Not Detected
m,p-Xylene	1.2	0.30 J	5.2	1.3 J
o-Xylene	1.2	Not Detected	5.2	Not Detected
Styrene	1.2	Not Detected	5.2	Not Detected
Bromoform	1.2	Not Detected	12	Not Detected
Cumene	1.2	Not Detected	5.9	Not Detected
1,1,2,2-Tetrachloroethane	1.2	Not Detected	8.3	Not Detected
Propylbenzene	1.2	Not Detected	5.9	Not Detected
4-Ethyltoluene	1.2	Not Detected	5.9	Not Detected
1,3,5-Trimethylbenzene	1.2	Not Detected	5.9	Not Detected
1,2,4-Trimethylbenzene	1.2	Not Detected	5.9	Not Detected
1,3-Dichlorobenzene	1.2	Not Detected	7.3	Not Detected
1,4-Dichlorobenzene	1.2	Not Detected	7.3	Not Detected
alpha-Chlorotoluene	1.2	Not Detected	6.3	Not Detected
1,2-Dichlorobenzene	1.2	Not Detected	7.3	Not Detected
1,2,4-Trichlorobenzene	4.8	Not Detected	36	Not Detected
Hexachlorobutadiene	4.8	Not Detected	52	Not Detected
Naphthalene	2.4	Not Detected	13	Not Detected

UJ = Analyte associated with low bias in the CCV.
J = Estimated value.
Container Type: 1 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
Toluene-d8	103	70-130
1,2-Dichloroethane-d4	93	70-130
4-Bromofluorobenzene	100	70-130

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Client Sample ID: B15SS-1(061216)

Lab ID#: 1606298E-16A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	17061607	**Date of Collection:**	6/12/16 8:12:00 PM
Dil. Factor:	2.27	**Date of Analysis:**	6/16/16 06:35 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	1.1	Not Detected	5.6	Not Detected
Freon 114	1.1	Not Detected	7.9	Not Detected
Chloromethane	11	Not Detected UJ	23	Not Detected UJ
Vinyl Chloride	1.1	Not Detected	2.9	Not Detected
1,3-Butadiene	1.1	Not Detected	2.5	Not Detected
Bromomethane	11	Not Detected	44	Not Detected
Chloroethane	4.5	Not Detected	12	Not Detected
Freon 11	1.1	Not Detected	6.4	Not Detected
Ethanol	4.5	18 J0	8.6	34 J0
Freon 113	1.1	Not Detected	8.7	Not Detected
1,1-Dichloroethene	1.1	Not Detected	4.5	Not Detected
Acetone	11	130	27	310
2-Propanol	4.5	Not Detected	11	Not Detected
Carbon Disulfide	4.5	4.8	14	15
3-Chloropropene	4.5	Not Detected	14	Not Detected
Methylene Chloride	11	Not Detected	39	Not Detected
Methyl tert-butyl ether	1.1	Not Detected	4.1	Not Detected
trans-1,2-Dichloroethene	1.1	Not Detected	4.5	Not Detected
Hexane	1.1	Not Detected	4.0	Not Detected
1,1-Dichloroethane	1.1	Not Detected	4.6	Not Detected
2-Butanone (Methyl Ethyl Ketone)	4.5	7.3	13	22
cis-1,2-Dichloroethene	1.1	Not Detected	4.5	Not Detected
Tetrahydrofuran	1.1	0.66 J	3.3	1.9 J
Chloroform	1.1	Not Detected	5.5	Not Detected
1,1,1-Trichloroethane	1.1	Not Detected	6.2	Not Detected
Cyclohexane	1.1	Not Detected	3.9	Not Detected
Carbon Tetrachloride	1.1	Not Detected	7.1	Not Detected
2,2,4-Trimethylpentane	1.1	Not Detected	5.3	Not Detected
Benzene	1.1	Not Detected	3.6	Not Detected
1,2-Dichloroethane	1.1	Not Detected	4.6	Not Detected
Heptane	1.1	1.3	4.6	5.5
Trichloroethene	1.1	Not Detected	6.1	Not Detected
1,2-Dichloropropane	1.1	Not Detected	5.2	Not Detected
1,4-Dioxane	4.5	0.46 J	16	1.7 J
Bromodichloromethane	1.1	Not Detected	7.6	Not Detected
cis-1,3-Dichloropropene	1.1	Not Detected	5.2	Not Detected
4-Methyl-2-pentanone	1.1	0.47 J	4.6	1.9 J
Toluene	1.1	1.9	4.3	7.1
trans-1,3-Dichloropropene	1.1	Not Detected	5.2	Not Detected
1,1,2-Trichloroethane	1.1	Not Detected	6.2	Not Detected
Tetrachloroethene	1.1	Not Detected	7.7	Not Detected
2-Hexanone	4.5	0.53 J	18	2.2 J

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Client Sample ID: B15SS-1(061216)

Lab ID#: 1606298E-16A

EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**17061607**	**Date of Collection: 6/12/16 8:12:00 PM**	
Dil. Factor:	**2.27**	**Date of Analysis: 6/16/16 06:35 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Dibromochloromethane	1.1	Not Detected	9.7	Not Detected
1,2-Dibromoethane (EDB)	1.1	Not Detected	8.7	Not Detected
Chlorobenzene	1.1	Not Detected	5.2	Not Detected
Ethyl Benzene	1.1	Not Detected	4.9	Not Detected
m,p-Xylene	1.1	0.36 J	4.9	1.6 J
o-Xylene	1.1	Not Detected	4.9	Not Detected
Styrene	1.1	0.26 J	4.8	1.1 J
Bromoform	1.1	Not Detected	12	Not Detected
Cumene	1.1	Not Detected	5.6	Not Detected
1,1,2,2-Tetrachloroethane	1.1	Not Detected	7.8	Not Detected
Propylbenzene	1.1	Not Detected	5.6	Not Detected
4-Ethyltoluene	1.1	Not Detected	5.6	Not Detected
1,3,5-Trimethylbenzene	1.1	Not Detected	5.6	Not Detected
1,2,4-Trimethylbenzene	1.1	Not Detected	5.6	Not Detected
1,3-Dichlorobenzene	1.1	Not Detected	6.8	Not Detected
1,4-Dichlorobenzene	1.1	Not Detected	6.8	Not Detected
alpha-Chlorotoluene	1.1	Not Detected	5.9	Not Detected
1,2-Dichlorobenzene	1.1	Not Detected	6.8	Not Detected
1,2,4-Trichlorobenzene	4.5	Not Detected	34	Not Detected
Hexachlorobutadiene	4.5	Not Detected	48	Not Detected
Naphthalene	2.3	0.33 J	12	1.7 J

UJ = Analyte associated with low bias in the CCV.
J0 = Estimated value due to bias in the CCV.
J = Estimated value.
Container Type: 1 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
Toluene-d8	102	70-130
1,2-Dichloroethane-d4	93	70-130
4-Bromofluorobenzene	100	70-130

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Client Sample ID: B7IA-1(061016)

Lab ID#: 1606298D-01A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**10062409**	**Date of Collection:**	**6/11/16 6:50:00 PM**
Dil. Factor:	**1.61**	**Date of Analysis:**	**6/24/16 01:19 PM**

Compound	Rpt. Limit (%)	Amount (%)
Methane	0.00016	0.00020

Container Type: 6 Liter Summa Canister (100% Certified)

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Client Sample ID: B7IA-1D(061016)

Lab ID#: 1606298D-02A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**10062410**	**Date of Collection:**	**6/11/16 6:50:00 PM**
Dil. Factor:	**1.67**	**Date of Analysis:**	**6/24/16 02:06 PM**

Compound	Rpt. Limit (%)	Amount (%)
Methane	0.00017	0.00019

Container Type: 6 Liter Summa Canister (100% Certified)

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Client Sample ID: B7IA-2(061016)

Lab ID#: 1606298D-03A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**10062411**	**Date of Collection:**	**6/11/16 7:50:00 PM**
Dil. Factor:	**1.60**	**Date of Analysis:**	**6/24/16 02:29 PM**

Compound	Rpt. Limit (%)	Amount (%)
Methane	0.00016	0.00015 J

J = Estimated value.

Container Type: 6 Liter Summa Canister (100% Certified)

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Client Sample ID: B7IA-3(061016)

Lab ID#: 1606298D-04A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**10062412**	**Date of Collection: 6/11/16 7:47:00 PM**	
Dil. Factor:	**1.87**	**Date of Analysis: 6/24/16 02:58 PM**	

Compound	Rpt. Limit (%)	Amount (%)
Methane	0.00019	0.00019

Container Type: 6 Liter Summa Canister (100% Certified)

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Client Sample ID: B7IA-4(061016)

Lab ID#: 1606298D-05A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**10062413**	**Date of Collection:**	**6/11/16 7:19:00 PM**
Dil. Factor:	**1.59**	**Date of Analysis:**	**6/24/16 03:22 PM**

Compound	Rpt. Limit (%)	Amount (%)
Methane	0.00016	0.00020

Container Type: 6 Liter Summa Canister (100% Certified)

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Client Sample ID: B7IA-S(061016)

Lab ID#: 1606298D-06A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**10062414**	**Date of Collection: 6/11/16 7:09:00 PM**	
Dil. Factor:	**1.69**	**Date of Analysis: 6/24/16 03:45 PM**	

Compound	Rpt. Limit (%)	Amount (%)
Methane	0.00017	0.00018

Container Type: 6 Liter Summa Canister (100% Certified)

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Client Sample ID: B7IA-6(061016)

Lab ID#: 1606298D-07A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	10062415	**Date of Collection:**	6/11/16 7:37:00 PM
Dil. Factor:	1.53	**Date of Analysis:**	6/24/16 04:08 PM

Compound	Rpt. Limit (%)	Amount (%)
Methane	0.00015	0.00016

Container Type: 6 Liter Summa Canister (100% Certified)

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Client Sample ID: B7AA(061016)

Lab ID#: 1606298D-08A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**10062416**	**Date of Collection: 6/11/16 6:25:00 PM**	
Dil. Factor:	**1.88**	**Date of Analysis: 6/24/16 04:31 PM**	

Compound	Rpt. Limit (%)	Amount (%)
Methane	0.00019	0.00018 J

J = Estimated value.

Container Type: 6 Liter Summa Canister (100% Certified)

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Client Sample ID: B7SS-1(061216)

Lab ID#: 1606298D-09A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**10062417**	**Date of Collection:**	**6/12/16 12:52:00 PM**
Dil. Factor:	**2.32**	**Date of Analysis:**	**6/24/16 04:55 PM**

Compound	Rpt. Limit (%)	Amount (%)
Methane	0.00023	0.00018 J

J = Estimated value.

Container Type: 1 Liter Summa Canister (100% Certified)

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Client Sample ID: B7SS-1D(061216)

Lab ID#: 1606298D-10A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**10062418**	**Date of Collection:**	**6/12/16 12:51:00 PM**
Dil. Factor:	**2.49**	**Date of Analysis:**	**6/24/16 05:19 PM**

Compound	Rpt. Limit (%)	Amount (%)
Methane	0.00025	0.00020 J

J = Estimated value.

Container Type: 1 Liter Summa Canister (100% Certified)

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Client Sample ID: B7SS-2(061216)

Lab ID#: 1606298D-11A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**10062419**	**Date of Collection: 6/12/16 1:47:00 PM**	
Dil. Factor:	**2.32**	**Date of Analysis: 6/24/16 05:43 PM**	

Compound	Rpt. Limit (%)	Amount (%)
Methane	0.00023	0.00023

Container Type: 1 Liter Summa Canister (100% Certified)

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Client Sample ID: B7SS-3(061216)

Lab ID#: 1606298D-12A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**10062420**	**Date of Collection: 6/12/16 5:05:00 PM**	
Dil. Factor:	**3.00**	**Date of Analysis: 6/24/16 06:29 PM**	

Compound	Rpt. Limit (%)	Amount (%)
Methane	0.00030	0.00020 J

J = Estimated value.

Container Type: 1 Liter Summa Canister (100% Certified)

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Client Sample ID: B7SS-4(061216)

Lab ID#: 1606298D-13A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**10062421**	**Date of Collection:**	**6/12/16 4:20:00 PM**
Dil. Factor:	**2.41**	**Date of Analysis:**	**6/24/16 06:54 PM**

Compound	Rpt. Limit (%)	Amount (%)
Methane	0.00024	0.00018 J

J = Estimated value.

Container Type: 1 Liter Summa Canister (100% Certified)

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Client Sample ID: B7SS-5(061216)

Lab ID#: 1606298D-14A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**10062522**	**Date of Collection:**	**6/12/16 11:16:00 AM**
Dil. Factor:	**3.02**	**Date of Analysis:**	**6/25/16 03:38 PM**

Compound	Rpt. Limit (%)	Amount (%)
Methane	0.00030	0.00025 J

J = Estimated value.

Container Type: 1 Liter Summa Canister (100% Certified)

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Client Sample ID: B7SS-6(061216)

Lab ID#: 1606298D-15A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**10062523**	**Date of Collection:**	**6/12/16 5:48:00 PM**
Dil. Factor:	**3.22**	**Date of Analysis:**	**6/25/16 04:04 PM**

Compound	Rpt. Limit (%)	Amount (%)
Methane	0.00032	0.00016 J

J = Estimated value.

Container Type: 1 Liter Summa Canister (100% Certified)

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Client Sample ID: B15SS-1(061216)

Lab ID#: 1606298G-16A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**10061611**	**Date of Collection: 6/12/16 8:12:00 PM**	
Dil. Factor:	**2.27**	**Date of Analysis: 6/16/16 01:50 PM**	

Compound	Rpt. Limit (%)	Amount (%)
Methane	0.00023	Not Detected

Container Type: 1 Liter Summa Canister (100% Certified)

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Client Sample ID: B7IA-1(061016)

Lab ID#: 1606298C-01A

EPA METHOD TO-15 GC/MS

File Name:	**14061707**	**Date of Collection: 6/11/16 6:50:00 PM**	
Dil. Factor:	**1.61**	**Date of Analysis: 6/17/16 03:19 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Methanol	160	Not Detected	210	Not Detected

Container Type: 6 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	98	70-130
Toluene-d8	101	70-130
4-Bromofluorobenzene	103	70-130

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Client Sample ID: B7IA-1D(061016)

Lab ID#: 1606298C-02A

EPA METHOD TO-15 GC/MS

File Name:	14061708	**Date of Collection:**	6/11/16 6:50:00 PM
Dil. Factor:	1.67	**Date of Analysis:**	6/17/16 03:43 PM

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Methanol	170	Not Detected	220	Not Detected

Container Type: 6 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	99	70-130
Toluene-d8	100	70-130
4-Bromofluorobenzene	103	70-130

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Client Sample ID: B7IA-2(061016)
Lab ID#: 1606298C-03A
EPA METHOD TO-15 GC/MS

File Name:	**14061709**	**Date of Collection: 6/11/16 7:50:00 PM**	
Dil. Factor:	**1.60**	**Date of Analysis: 6/17/16 04:03 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Methanol	160	Not Detected	210	Not Detected

Container Type: 6 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	100	70-130
Toluene-d8	99	70-130
4-Bromofluorobenzene	103	70-130

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Client Sample ID: B7IA-3(061016)

Lab ID#: 1606298C-04A

EPA METHOD TO-15 GC/MS

File Name:	**14061710**	**Date of Collection:**	**6/11/16 7:47:00 PM**
Dil. Factor:	**1.87**	**Date of Analysis:**	**6/17/16 04:37 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Methanol	190	Not Detected	240	Not Detected

Container Type: 6 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	97	70-130
Toluene-d8	100	70-130
4-Bromofluorobenzene	101	70-130

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Client Sample ID: B7IA-4(061016)
Lab ID#: 1606298C-05A
EPA METHOD TO-15 GC/MS

File Name:	**14061711**	**Date of Collection: 6/11/16 7:19:00 PM**	
Dil. Factor:	**1.59**	**Date of Analysis: 6/17/16 05:01 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Methanol	160	Not Detected	210	Not Detected

Container Type: 6 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	100	70-130
Toluene-d8	99	70-130
4-Bromofluorobenzene	104	70-130

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Client Sample ID: B7IA-5(061016)

Lab ID#: 1606298C-06A

EPA METHOD TO-15 GC/MS

File Name:	**14061712**	**Date of Collection: 6/11/16 7:09:00 PM**	
Dil. Factor:	**1.69**	**Date of Analysis: 6/17/16 05:22 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Methanol	170	Not Detected	220	Not Detected

Container Type: 6 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	99	70-130
Toluene-d8	101	70-130
4-Bromofluorobenzene	101	70-130

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Client Sample ID: B7IA-6(061016)
Lab ID#: 1606298C-07A
EPA METHOD TO-15 GC/MS

File Name:	**14061713**	**Date of Collection: 6/11/16 7:37:00 PM**	
Dil. Factor:	**1.53**	**Date of Analysis: 6/17/16 05:48 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Methanol	150	Not Detected	200	Not Detected

Container Type: 6 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	101	70-130
Toluene-d8	100	70-130
4-Bromofluorobenzene	103	70-130

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Client Sample ID: B7AA(061016)

Lab ID#: 1606298C-08A

EPA METHOD TO-15 GC/MS

File Name:	**14061714**	**Date of Collection: 6/11/16 6:25:00 PM**	
Dil. Factor:	**1.88**	**Date of Analysis: 6/17/16 06:08 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Methanol	190	Not Detected	250	Not Detected

Container Type: 6 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	102	70-130
Toluene-d8	98	70-130
4-Bromofluorobenzene	102	70-130

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Client Sample ID: B7SS-1(061216)
Lab ID#: 1606298C-09A
EPA METHOD TO-15 GC/MS

File Name:	**14061715**	**Date of Collection: 6/12/16 12:52:00 PM**	
Dil. Factor:	**2.32**	**Date of Analysis: 6/17/16 06:30 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Methanol	230	Not Detected	300	Not Detected

Container Type: 1 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	98	70-130
Toluene-d8	102	70-130
4-Bromofluorobenzene	106	70-130

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Client Sample ID: B7SS-1D(061216)
Lab ID#: 1606298C-10A
EPA METHOD TO-15 GC/MS

File Name:	**14061716**	**Date of Collection: 6/12/16 12:51:00 PM**	
Dil. Factor:	**2.49**	**Date of Analysis: 6/17/16 06:56 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Methanol	250	Not Detected	330	Not Detected

Container Type: 1 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	102	70-130
Toluene-d8	101	70-130
4-Bromofluorobenzene	102	70-130

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Client Sample ID: B7SS-2(061216)
Lab ID#: 1606298C-11A
EPA METHOD TO-15 GC/MS

File Name:	**14061717**	**Date of Collection: 6/12/16 1:47:00 PM**	
Dil. Factor:	**2.32**	**Date of Analysis: 6/17/16 07:18 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Methanol	230	Not Detected	300	Not Detected

Container Type: 1 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	100	70-130
Toluene-d8	102	70-130
4-Bromofluorobenzene	108	70-130

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Client Sample ID: B7SS-3(061216)

Lab ID#: 1606298C-12A

EPA METHOD TO-15 GC/MS

File Name:	**14061718**	**Date of Collection: 6/12/16 5:05:00 PM**	
Dil. Factor:	**2.20**	**Date of Analysis: 6/17/16 07:39 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Methanol	220	Not Detected	290	Not Detected

Container Type: 1 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	100	70-130
Toluene-d8	101	70-130
4-Bromofluorobenzene	105	70-130

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Client Sample ID: B7SS-4(061216)
Lab ID#: 1606298C-13A
EPA METHOD TO-15 GC/MS

File Name:	**14061722**	**Date of Collection: 6/12/16 4:20:00 PM**	
Dil. Factor:	**2.41**	**Date of Analysis: 6/17/16 09:16 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Methanol	240	Not Detected	320	Not Detected

Container Type: 1 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	98	70-130
Toluene-d8	104	70-130
4-Bromofluorobenzene	104	70-130

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Client Sample ID: B7SS-5(061216)
Lab ID#: 1606298C-14A
EPA METHOD TO-15 GC/MS

File Name:	**14061721**	**Date of Collection: 6/12/16 11:16:00 AM**	
Dil. Factor:	**2.29**	**Date of Analysis: 6/17/16 08:53 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Methanol	230	Not Detected	300	Not Detected

Container Type: 1 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	98	70-130
Toluene-d8	102	70-130
4-Bromofluorobenzene	105	70-130

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Client Sample ID: B7SS-6(061216)
Lab ID#: 1606298C-15A
EPA METHOD TO-15 GC/MS

File Name:	**14061720**	**Date of Collection: 6/12/16 5:48:00 PM**	
Dil. Factor:	**2.42**	**Date of Analysis: 6/17/16 08:35 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Methanol	240	Not Detected	320	Not Detected

Container Type: 1 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	100	70-130
Toluene-d8	102	70-130
4-Bromofluorobenzene	103	70-130

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Client Sample ID: B15SS-1(061216)

Lab ID#: 1606298F-16A

EPA METHOD TO-15 GC/MS

File Name:	**14061719**	**Date of Collection: 6/12/16 8:12:00 PM**	
Dil. Factor:	**2.26**	**Date of Analysis: 6/17/16 08:16 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Methanol	230	Not Detected	300	Not Detected

Container Type: 1 Liter Summa Canister (100% Certified)

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	100	70-130
Toluene-d8	101	70-130
4-Bromofluorobenzene	105	70-130

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Client Sample ID: B7IA-1 (061016)
Lab ID#: 1606272-01A
EPA METHOD TO-17

File Name:	**6061710**	**Date of Extraction: NA**	**Date of Collection: 6/11/16 6:40:00 PM**
Dil. Factor:	**1.00**		**Date of Analysis: 6/17/16 05:19 PM**

Compound	Rpt. Limit (ng)	Rpt. Limit (ug/m3)	Amount (ng)	Amount (ug/m3)
Naphthalene	1.0	0.059	2.1	0.12

Air Sample Volume(L): 17.0
Container Type: TO-17 VI Tube

Surrogates	%Recovery	Method Limits
Naphthalene-d8	100	50-150

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Client Sample ID: B7IA-1D (061016)

Lab ID#: 1606272-02A

EPA METHOD TO-17

File Name:	6061711	Date of Extraction: NA	Date of Collection: 6/11/16 6:43:00 PM
Dil. Factor:	1.00		Date of Analysis: 6/17/16 05:59 PM

Compound	Rpt. Limit (ng)	Rpt. Limit (ug/m3)	Amount (ng)	Amount (ug/m3)
Naphthalene	1.0	0.060	2.0	0.12

Air Sample Volume(L): 16.6
Container Type: TO-17 VI Tube

Surrogates	%Recovery	Method Limits
Naphthalene-d8	106	50-150

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Client Sample ID: B7IA-2 (061016)
Lab ID#: 1606272-03A
EPA METHOD TO-17

File Name:	**6061712**	**Date of Extraction: NA**	**Date of Collection: 6/11/16 10:41:00 AM**
Dil. Factor:	**1.00**		**Date of Analysis: 6/17/16 06:39 PM**

Compound	Rpt. Limit (ng)	Rpt. Limit (ug/m3)	Amount (ng)	Amount (ug/m3)
Naphthalene	1.0	0.095	1.5	0.14

Air Sample Volume(L): 10.5
Container Type: TO-17 VI Tube

Surrogates	%Recovery	Method Limits
Naphthalene-d8	98	50-150

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Client Sample ID: B7IA-3 (061016)
Lab ID#: 1606272-04A
EPA METHOD TO-17

File Name:	**6061713**	**Date of Extraction: NA**	**Date of Collection: 6/11/16 7:47:00 PM**
Dil. Factor:	**1.00**		**Date of Analysis: 6/17/16 07:18 PM**

Compound	Rpt. Limit (ng)	Rpt. Limit (ug/m3)	Amount (ng)	Amount (ug/m3)
Naphthalene	1.0	0.063	3.7	0.24

Air Sample Volume(L): 15.8
Container Type: TO-17 VI Tube

Surrogates	%Recovery	Method Limits
Naphthalene-d8	99	50-150

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Client Sample ID: B7IA-4 (061016)
Lab ID#: 1606272-05A
EPA METHOD TO-17

File Name:	**6061714**	**Date of Extraction: NA**	**Date of Collection: 6/11/16 12:20:00 PM**
Dil. Factor:	**1.00**		**Date of Analysis: 6/17/16 07:58 PM**

Compound	Rpt. Limit (ng)	Rpt. Limit (ug/m3)	Amount (ng)	Amount (ug/m3)
Naphthalene	1.0	0.085	1.0	0.090

Air Sample Volume(L): 11.7
Container Type: TO-17 VI Tube

Surrogates	%Recovery	Method Limits
Naphthalene-d8	93	50-150

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Client Sample ID: B7IA-5 (061016)
Lab ID#: 1606272-06A
EPA METHOD TO-17

File Name:	**6061715**	**Date of Extraction: NA**	**Date of Collection: 6/11/16 7:25:00 PM**
Dil. Factor:	**1.00**		**Date of Analysis: 6/17/16 08:38 PM**

Compound	Rpt. Limit (ng)	Rpt. Limit (ug/m3)	Amount (ng)	Amount (ug/m3)
Naphthalene	1.0	0.088	3.5	0.31

Air Sample Volume(L): 11.3
Container Type: TO-17 VI Tube

Surrogates	%Recovery	Method Limits
Naphthalene-d8	98	50-150

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Client Sample ID: B7IA-6 (061016)
Lab ID#: 1606272-07A
EPA METHOD TO-17

File Name:	**6061716**	**Date of Extraction: NA**	**Date of Collection: 6/11/16 7:36:00 PM**
Dil. Factor:	**1.00**		**Date of Analysis: 6/17/16 09:17 PM**

Compound	Rpt. Limit (ng)	Rpt. Limit (ug/m3)	Amount (ng)	Amount (ug/m3)
Naphthalene	1.0	0.061	3.8	0.23

Air Sample Volume(L): 16.3
Container Type: TO-17 VI Tube

Surrogates	%Recovery	Method Limits
Naphthalene-d8	100	50-150

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Client Sample ID: B7AA (061016)
Lab ID#: 1606272-08A
EPA METHOD TO-17

File Name:	6061717	Date of Extraction: NA	Date of Collection: 6/11/16 6:25:00 PM
Dil. Factor:	1.00		Date of Analysis: 6/17/16 09:57 PM

Compound	Rpt. Limit (ng)	Rpt. Limit (ug/m3)	Amount (ng)	Amount (ug/m3)
Naphthalene	1.0	0.060	0.52 J	0.032 J

Air Sample Volume(L): 16.6
J = Estimated value.
Container Type: TO-17 VI Tube

Surrogates	%Recovery	Method Limits
Naphthalene-d8	91	50-150

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Client Sample ID: B7SS-1 (061216)
Lab ID#: 1606272-09A
EPA METHOD TO-17

File Name:	**6061517**	**Date of Extraction: NA**	**Date of Collection: 6/12/16 1:03:00 PM**
Dil. Factor:	**1.00**		**Date of Analysis: 6/15/16 10:19 PM**

Compound	Rpt. Limit (ng)	Rpt. Limit (ug/m3)	Amount (ng)	Amount (ug/m3)
Naphthalene	1.0	2.5	Not Detected	Not Detected

Air Sample Volume(L): 0.400
Container Type: TO-17 VI Tube

Surrogates	%Recovery	Method Limits
Naphthalene-d8	92	50-150

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Client Sample ID: B7SS-1D (061216)
Lab ID#: 1606272-10A
EPA METHOD TO-17

File Name:	**6061518**	**Date of Extraction: NA**	**Date of Collection: 6/12/16 12:58:00 PM**
Dil. Factor:	**1.00**		**Date of Analysis: 6/15/16 10:59 PM**

Compound	Rpt. Limit (ng)	Rpt. Limit (ug/m3)	Amount (ng)	Amount (ug/m3)
Naphthalene	1.0	2.5	Not Detected	Not Detected

Air Sample Volume(L): 0.400
Container Type: TO-17 VI Tube

Surrogates	%Recovery	Method Limits
Naphthalene-d8	98	50-150

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Client Sample ID: B7SS-2 (061216)
Lab ID#: 1606272-11A
EPA METHOD TO-17

File Name:	**6061519**	**Date of Extraction: NA**	**Date of Collection: 6/12/16 1:52:00 PM**
Dil. Factor:	**1.00**		**Date of Analysis: 6/15/16 11:39 PM**

Compound	Rpt. Limit (ng)	Rpt. Limit (ug/m3)	Amount (ng)	Amount (ug/m3)
Naphthalene	1.0	2.5	0.49 J	1.2 J

Air Sample Volume(L): 0.400
J = Estimated value.
Container Type: TO-17 VI Tube

Surrogates	%Recovery	Method Limits
Naphthalene-d8	97	50-150

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Client Sample ID: B7SS-3 (061216)
Lab ID#: 1606272-12A
EPA METHOD TO-17

File Name:	**6061520**	**Date of Extraction: NA**	**Date of Collection: 6/12/16 5:14:00 PM**
Dil. Factor:	**1.00**		**Date of Analysis: 6/16/16 12:19 AM**

Compound	Rpt. Limit (ng)	Rpt. Limit (ug/m3)	Amount (ng)	Amount (ug/m3)
Naphthalene	1.0	2.5	Not Detected	Not Detected

Air Sample Volume(L): 0.400
Container Type: TO-17 VI Tube

Surrogates	%Recovery	Method Limits
Naphthalene-d8	102	50-150

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Client Sample ID: B7SS-4 (061216)
Lab ID#: 1606272-13A
EPA METHOD TO-17

File Name:	**6061521**	**Date of Extraction: NA**	**Date of Collection: 6/12/16 4:25:00 PM**
Dil. Factor:	**1.00**		**Date of Analysis: 6/16/16 12:58 AM**

Compound	Rpt. Limit (ng)	Rpt. Limit (ug/m3)	Amount (ng)	Amount (ug/m3)
Naphthalene	1.0	2.5	Not Detected	Not Detected

Air Sample Volume(L): 0.400
Container Type: TO-17 VI Tube

Surrogates	%Recovery	Method Limits
Naphthalene-d8	106	50-150

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Client Sample ID: B7SS-5 (061216)
Lab ID#: 1606272-14A
EPA METHOD TO-17

File Name:	6061522	Date of Extraction: NA	Date of Collection: 6/12/16 11:20:00 AM
Dil. Factor:	1.00		Date of Analysis: 6/16/16 01:38 AM

Compound	Rpt. Limit (ng)	Rpt. Limit (ug/m3)	Amount (ng)	Amount (ug/m3)
Naphthalene	1.0	2.5	0.80 J	2.0 J

Air Sample Volume(L): 0.400
J = Estimated value.
Container Type: TO-17 VI Tube

Surrogates	%Recovery	Method Limits
Naphthalene-d8	103	50-150

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Client Sample ID: B7SS-6 (061216)
Lab ID#: 1606272-15A
EPA METHOD TO-17

File Name:	**6061523**	**Date of Extraction: NA**	**Date of Collection: 6/12/16 5:53:00 PM**
Dil. Factor:	**1.00**		**Date of Analysis: 6/16/16 02:18 AM**

Compound	Rpt. Limit (ng)	Rpt. Limit (ug/m3)	Amount (ng)	Amount (ug/m3)
Naphthalene	1.0	2.5	Not Detected	Not Detected

Air Sample Volume(L): 0.400
Container Type: TO-17 VI Tube

Surrogates	%Recovery	Method Limits
Naphthalene-d8	96	50-150

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Client Sample ID: B15SS-1 (061216)

Lab ID#: 1606272-16A

EPA METHOD TO-17

File Name:	**6061524**	**Date of Extraction: N/A**	**Date of Collection: 6/12/16 8:17:00 PM**
Dil. Factor:	**1.00**		**Date of Analysis: 6/16/16 02:58 AM**

Compound	Rpt. Limit (ng)	Rpt. Limit (ug/m3)	Amount (ng)	Amount (ug/m3)
Naphthalene	1.0	2.5	Not Detected	Not Detected

Air Sample Volume(L): 0.400
Container Type: TO-17 VI Tube

Surrogates	%Recovery	Method Limits
Naphthalene-d8	97	50-150

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Collected by: (Print and Sign) _____
Company AMAT Email _____
Address 2700 Westchester City Purchase State NY Zip 10577
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Lab Use Only
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Date:
Pressurization Gas: N_2 He

Lab I.D.	Field Sample I.D. (Location)	Can #	Date of Collection	Time of Collection	Analyses Requested	Canister Pressure/Vacuum Initial	Final	Receipt	Final (psi)
01A	B7IA-1(061016)	611283	6/11/16	1650	TO-15	30	7		
02A	B7IA-1D(061016)	03536	6/11/16	1850	TO-15	30	6.5		
03A	B7IA-2(061016)	06389	6/11/16	1950	TO-15	30	7		
04A	B7IA-3(061016)	06354	6/11/16	1947	TO-15	30	9		
05A	B7IA-4(061016)	N06584	6/11/16	1919	TO-15	30	8		
06A	B7IA-5(061016)	34423	6/11/16	1909	TO-15	30	5		
07A	B7IA-6(061016)	446	6/4/16	1937	TO-15	28	6		
08A	B7AA(061016)	25249	6/11/16	1825	TO-15	30	9		
09A	B7SS-1(061216)	37677	6/12/16	1252	TO-15	30	5		
10A	B7SS-1D(061216)	34581	6/12/16	1251	TO-15	30	5		

kfr 6/16/16

Relinquished by: (signature) Date/Time 13Jun16 1700
Relinquished by: (signature) Date/Time
Relinquished by: (signature) Date/Time

Received by: (signature) Date/Time FedEx (Trk# 776506011091)
Received by: (signature) Date/Time FEAR 6-14-16 1000
Received by: (signature) Date/Time

Notes:

Lab Use Only	Shipper Name	Air Bill #	Temp (°C)	Condition	Custody Seals Intact?	Work Order #
	FedEx		Ice	Good	Yes No (None)	1606298

Form 1293 rev.11

eurofins | Air Toxics

Sample Transportation Notice
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FOLSOM, CA 95630-4719
(916) 985-1000 FAX (916) 985-1020

Page 2 of 2

Project Manager Terry Taylor
Collected by: (Print and Sign) [signature]
Company AMAT Email
Address 2700 Westchester City Purchase State NY Zip 0577
Phone 914-251-0400 Fax

Project Info:
P.O. #
Project # Building 7 VI
Project Name

Turn Around Time:
☒ Normal
☐ Rush
specify

Lab Use Only
Pressurized by:
Date:
Pressurization Gas: N_2 He

Lab I.D.	Field Sample I.D. (Location)	Can #	Date of Collection	Time of Collection	Analyses Requested	Canister Pressure/Vacuum Initial	Final	Receipt	Final (psi)
11A	B755-2(061216)	36539	6/12/16	1347	TO-15	30	5		
12A	B755-3(061216)	N2040	6/12/16	1705	TO-15	21	3		
13A	B755-4(061216)	35658	6/12/16	1620	TO-15	30	5		
14A	B755-5(061216)	1L2944	6/12/16	1116	TO-15	30	5		
15A	B755-6(061216)	1L1606	6/12/16	1748	TO-15	29	5		
16A	B1555-1(061216)	35677	6/12/16	2012	TO-15	30	5		

AA 6/14/16

Relinquished by: (signature) Date/Time: [signature] 6/13/16 1700
Relinquished by: (signature) Date/Time:
Relinquished by: (signature) Date/Time:

Received by: (signature) Date/Time: FedEx (Trk# 7765 0601 1091)
Received by: (signature) Date/Time: [signature] 6/14/16 1000
Received by: (signature) Date/Time:

Notes:

Lab Use Only	Shipper Name	Air Bill #	Temp (°C)	Condition	Custody Seals Intact?	Work Order #
	FedEx		12	Good	Yes No None	1606298

Form 1283 rev.11

TO-17 SAMPLE COLLECTION

Air Toxics LTD.

CHAIN-OF-CUSTODY RECORD

Sample Transportation Notice
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FOLSOM, CA 95630
(916) 985-1000 FAX (916) 985-1020

Project Manager Terry Taylor
Collected by: (Print and Sign) [signature]
Company AMAI Email
Address 2700 Westchester City Purchase State NY Zip 10577
Phone 914-251-0400 Fax

Project Info:
P.O. #
Project # Bilding 7 VI
Project Name

Turn Around Time:
☒ Normal
☐ Rush
specify

Reporting Units:
☐ ppmv
☒ ppbv
☒ ug/m3
☐ mg/m3

Lab I.D.	Field Sample I.D. (Location)	Engraved or Stamped Tube #	Date of Collection (mm/dd/yy)	Start Time (hr:min)	End Time (hr:min)	Pre-Test Flow Rate ml/min	Post-Test Flow Rate ml/min	Volume l	Indoor/Outdoor % RH	Indoor/Outdoor Temp	Indoor Air	Outdoor Air	Soil Vapor	Other ( )
01A	B7IA-1(061016)	150557	6/11/16	1640	1640	36	35	17	77	83	☒	☐	☐	☐
02A	B7IA-1D(061016)	143596	6/11/16	1848	1843	35	35	16.6	77	83	☒	☐	☐	☐
03A	B7IA-2(061016)	145511	6/11/16	1950	1041	35	36	10.5	81	81	☒	☐	☐	☐
04A	B7IA-3(061016)	184971	6/11/16	1947	1947	36	30	15.8	79	81	☒	☐	☐	☐
05A	B7IA-4(061016)	154191	6/11/16	1920	1220	34	35	11.7	78	87	☒	☐	☐	☐
06A	B7IA-5(061016)	147322	6/11/16	1915	1925	35	28	11.3	88	88	☒	☐	☐	☐
07A	B7IA-6(061016)	143760	6/11/16	1936	1936	34	34	16.3	81	88	☒	☐	☐	☐
08A	B7AA(061016)	147216	6/11/16	1825	1825	34	35	16.6	84	85	☐	☒	☐	☐
											☐	☐	☐	☐
											☐	☐	☐	☐

Relinquished by: (signature) [signature] Date/Time 12Jun16 1700
Received by: (signature) Date/Time FedEx (Trk#776506011091)

Relinquished by: (signature) Date/Time
Received by: (signature) Date/Time 6/14/16 1000 Andrea Augustin EATL

Relinquished by: (signature) Date/Time
Received by: (signature) Date/Time

Notes:
TO-17 Naphthalene Only

Lab Use Only	Shipper Name	Air Bill #	Temp (°C)	Condition	Custody Seals Intact?	Work Order #
	Fed Ex		3.4°C	Good	Yes No (None)	1606272

TO-17 SAMPLE COLLECTION

Air Toxics LTD.

CHAIN-OF-CUSTODY RECORD

Sample Transportation Notice
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FOLSOM, CA 95630
(916) 985-1000 FAX (916) 985-1020

Project Manager Terry Taylor
Collected by: (Print and Sign) [signature]
Company AMAJ Email
Address 2700 Westchester City Purchase State NY Zip 10577
Phone 914-251-0400 Fax

Project Info:
P.O. #
Project # Building 7 VI
Project Name

Turn Around Time:
☒ Normal
☐ Rush
specify

Reporting Units:
☐ ppmv
☒ ppbv
☒ µg/m3
☐ mg/m3

Lab I.D.	Field Sample I.D. (Location)	Engraved or Stamped Tube #	Date of Collection (mm/dd/yy)	Start Time (hr:min)	End Time (hr:min)	Pre-Test Flow Rate ml/min	Post-Test Flow Rate ml/min	Volume ml	Indoor/Outdoor % RH	Indoor/Outdoor Temp	Indoor Air	Outdoor Air	Soil Vapor	Other ( )
9A	B7SS-1(061216)	141302	6/12/16	1300	1303	133	133	400	64	83	☐	☐	☒	☐
10A	B7SS-1D(061216)	148999	6/12/16	1255	1258	133	133	400	88	83 28.5	☐	☐	☒	☐
11A	B7SS-2(061216)	143671	6/12/16	1349	1352	133	133	400	82 77	28.5	☐	☐	☒	☐
12A	B7SS-3(061216)	143423	6/12/16	1711	1714	133	133	400	62 82	89	☐	☐	☒	☐
13A	B7SS-4(061216)	163666	6/12/16	1622	1625	133	133	400	62	81	☐	☐	☒	☐
14A	B7SS-5(061216)	153605	6/12/16	1117	1120	133	133	400	90	85	☐	☐	☒	☐
15A	B7SS-6(061216)	147~~0~~06	6/12/16	1750	1753	133	133	400	64	85	☐	☐	☒	☐
16A	B15SS-1(061216)	147226	6/12/16	2014	2017	133	133	400	58	77	☐	☐	☒	☐
											☐	☐	☐	☐
											☐	☐	☐	☐

Relinquished by: (signature) Date/Time 13 Jun 16 1700
Received by: (signature) Date/Time FedEx (Trk# 7765 0601 1091)

Relinquished by: (signature) Date/Time
Received by: (signature) Date/Time 6/14/16 1000

Relinquished by: (signature) Date/Time
Received by: (signature) Date/Time

Notes:

Lab Use Only	Shipper Name	Air Bill #	Temp (°C)	Condition	Custody Seals Intact?	Work Order #
	Fed Ex		3.4°c	Good	Yes No (None)	1606272

DATA REVIEW WORKSHEETS

Project Number:__1606298A/1606298B/1606298E_____
Date:_____06/11-12/2016_____

REVIEW OF VOLATILE ORGANIC PACKAGE

The following guidelines for evaluating volatile organics were created to delineate required validation actions. This document will assist the reviewer in using professional judgment to make more informed decision and in better serving the needs of the data users. The sample results were assessed according to USEPA data validation guidance documents in the following order of precedence: QC criteria from "Compendium Method TO-15. Determination of Volatile Organic Compounds (VOCs) In Air Collected In Specially-Prepared Canisters and Analyzed By Gas Chromatography/Mass Spectrometry (GC/MS), January, 1999"; USEPA Hazardous Waste Support Branch. Validating Air Samples. Volatile Organic Analysis of Ambient Air in Canisters by Method TO-15, (SOP # HW-31. Revision #4. October, 2006). The QC criteria and data validation actions listed on the data review worksheets are from the primary guidance document, unless otherwise noted.

The hardcopied (laboratory name) _Eurofins_-_Air_Toxics_____ data package received has been reviewed and the quality control and performance data summarized. The data review for VOCs included:

Lab. Project/SDG No.: __1606298A/1606298B/1606298E__ Sample matrix: ___Air_____
No. of Samples: _____17_____

Trip blank No.: _____-_____
Field blank No.: _____-_____
Equipment blank No.:___-_____
Field duplicate No.:___1606298A-01A/1606298A-02A;_1606298A-09A/1606298A-10A_____

___X___ Data Completeness
___X___ Holding Times
___X___ GC/MS Tuning
___X___ Internal Standard Performance
___X___ Blanks
___X___ Surrogate Recoveries
___N/A_ Matrix Spike/Matrix Spike Duplicate
___X___ Laboratory Control Spikes
___X___ Field Duplicates
___X___ Calibrations
___X___ Compound Identifications
___X___ Compound Quantitation
___X___ Quantitation Limits

Overall Comments:_VOCs_by_method_TO-15_(full suite)_____
_____

Definition of Qualifiers:

J- Estimated results
U- Compound not detected
R- Rejected data
UJ- Estimated nondetect

Reviewer:___ Rafael DeFaut _____ Date:__ 07/11/2016_____

DATA REVIEW WORKSHEETS

DATA COMPLETENESS

MISSING INFORMATION	DATE LAB. CONTACTED	DATE RECEIVED

All criteria were met __X__
Criteria were not met
and/or see below _____

HOLDING TIMES

The objective of this parameter is to ascertain the validity of the results based on the holding time of the sample from time of collection to the time of analysis.

Complete table for all samples and note the analysis and/or preservation not within criteria

SAMPLE ID	DATE SAMPLED	DATE ANALYZED	pH	ACTION
All samples analyzed within the recommended method holding time.				

Criteria

Aqueous samples – 14 days from sample collection for preserved samples (pH $\leq$ 2, 4°C), no air bubbles.
Aqueous samples – 7 days from sample collection for unpreserved samples, 4°C, no air bubbles.
Soil samples- 7 days from sample collection.
Cooler temperature (Criteria: 4 $\pm$ 2 °C): N/A – summa canisters

Actions

If the VOCs vial(s) have air bubbles, estimate positive results (J) and reject nondetects (R).
If the % solids of soil samples is 10-50%, estimates positive results (J) and nondetects (UJ)
If the % solid of soil samples is < 10%, estimate positive results (J) and reject nondetects (R).
If holding times are exceeded but < 14 days beyond criteria, estimate positive results (J) and nondetects (UJ).
If holding times are exceeded but < 28 days beyond criteria, estimate positive results (J) and reject nondetects (R).
If holding times are grossly exceeded (> 28 days beyond criteria), reject all results (R).
If samples were not iced or if the ice were melted (> 10°C), estimate positive results (J) and nondetects (UJ).

All criteria were met __X__
Criteria were not met see below ____

GC/MS TUNING

The assessment of the tuning results is to determine if the sample instrumentation is within the standard tuning QC limits

__X___ The BFB performance results were reviewed and found to be within the specified criteria.

__X___ BFB tuning was performed for every 24 hours of sample analysis.

If no, use professional judgment to determine whether the associated data should be accepted, qualified or rejected.

List the samples affected: _____

If mass calibration is in error, all associated data are rejected.

All criteria were met __X___
Criteria were not met
and/or see below _____

CALIBRATION VERIFICATION

Compliance requirements for satisfactory instrument calibration are established to ensure that the instrument is capable of producing and maintaining acceptable quantitative data.

Date of initial calibration:_____06/13/16_____ Date of initial calibration:_____04/12/16_____
Dates of continuing calibration:__06/15/16_____ Dates of continuing calibration:__06/16/16_____
Instrument ID numbers:____MSD-20_____ Instrument ID numbers:____MSD-17_____
Matrix/Level:_____Air/low_____ Matrix/Level:_____Air/low_____

DATE	LAB FILE ID#	CRITERIA OUT RFs, %RSD, %D, r	COMPOUND	SAMPLES AFFECTED
Initial and continuing calibration met the method performance criteria except the cases described in this document.				
MSD-17				
06/16/16	1606298E-18A	31 %	Chloromethane	1606298B-09A to -15A; 1606298E-16A
		40 %	Ehanol	

Note: Results qualified as estimated (J) or (UJ) in affected samples.

Criteria

All RFs must be > 0.05 regardless of method requirements for SPCC.
All %RSD must be ≤ 30 % with < 2 analytes ≤ 40 % regardless of method requirements for CCC.
All %Ds must be ≤ 30% regardless of method requirements for CCC.
Method TO-15 does not specify criterion for the curve correlation coefficient (r). A limit for r of ≥ 0.995 has therefore been utilized as professional judgment.

Actions

If any compound has an initial RF or a continuing RF of < 0.05, estimate positive results (J) and reject nondetects (R), regardless of method requirements.
If any compound has a %RSD > 30%, estimate positive results (J) and use professional judgment to qualify nondetects.
If any compound has a %RSD > 90%, estimate positive results (J) and reject nondetects (R).
If any compound has a % D > 30%, estimate positive results (J) and reject nondetects (R).
If any compound has a % D > 30%, estimate positive results (J) and nondetects (UJ).
If any compound has a % D > 90%, estimate positive results (J) and reject nondetects (R).
If any compound has r < 0.995, estimate positive results and nondetects.

A separate worksheet should be filled for each initial curve

All criteria were met _____
Criteria were not met
and/or see below ___X___

V A. BLANK ANALYSIS RESULTS (Sections 1 & 2)

The assessment of the blank analysis results is to determine the existence and magnitude of contamination problems. The criteria for evaluation of blanks apply only to blanks associated with the samples, including trip, equipment, and laboratory blanks. If problems with any blanks exist, all data associated with the case must be carefully evaluated to determine whether or not there is an inherent variability in the data for the case, or if the problem is an isolated occurrence not affecting other data.

List the contamination in the blanks below. High and low levels blanks must be treated separately.

Laboratory blanks

DATE ANALYZED	LAB ID	LEVEL/ MATRIX	COMPOUND	CONCENTRATION/ UNITS
None of the analyte detected in the method/laboratory blank above the reporting limit/ action level for blanks.				

Note: Several analytes detected in the method blank analyzed on 06/15/16 below the reporting limit/action level. Laboratory qualified the results as estimated (J). No further qualification made.

Summa canisters met cleaning certification criteria

Field/Equipment/Trip blank

DATE ANALYZED	LAB ID	LEVEL/ MATRIX	COMPOUND	CONCENTRATION UNITS
No field/trip/equipment blanks analyzed with this data package.				

All criteria were met __X__
Criteria were not met
and/or see below _____

V B. BLANK ANALYSIS RESULTS (Section 3)

Blank Actions

Action Levels (ALs) should be based upon the highest concentration of contaminant determined in any blank. Do not qualify any blank with another blank. The ALs for samples which have been diluted should be corrected for the sample dilution factor and/or % moisture, where applicable. No positive sample results should be reported unless the concentration of the compound in the samples exceeds the ALs:

ALs = 10x the amount of common contaminants (methylene chloride, acetone, 2-butanone, and toluene)
ALs = 5x for any other compounds

Specific actions are as follows:

If the concentration is < sample quantitation limit (SQL) and ≤ AL, report the compound as not detected (U) at the SQL.
If the concentration is ≥ SQL but ≤ AL, report the compound as not detected (U) at the reported concentration.
If the concentration is ≥ SQL and > AL, report the concentration unqualified.

Notes:

High and low level blanks must be treated separately
Compounds qualified "U" for blank contamination are still considered "hits" when qualifying for calibration criteria.

CONTAMINATION SOURCE/LEVEL	COMPOUND	CONC/UNITS	AL/UNITS	SQL	AFFECTED SAMPLES

All criteria were met __X__
Criteria were not met
and/or see below _____

SURROGATE SPIKE RECOVERIES

Laboratory performance of individual samples is established by evaluation of surrogate spike recoveries. All samples are spiked with surrogate compounds prior to sample analysis. The accuracy of the analysis is measured by the surrogate percent recovery. Since the effects of the sample matrix are frequently outside the control of the laboratory and may present relatively unique problems, the validation of data is frequently subjective and demands analytical experience and professional judgment.
List the percent recoveries (%Rs) which do not meet the criteria for surrogate recovery.
Matrix: solid/aqueous

SAMPLE ID	SURROGATE COMPOUND			ACTION
	1,2-DICHLOROETHANE-d4	Toluene-d8	4-BFB	

_Surrogate_recoveries_within_laboratory_control_limits_____
_____
_____
_____
_____
_____

QC Limits* (Air)

_____LL_to_UL___70__to_130__ _70__to_130_ _70__to_130__

* QC limits are laboratory in-house performance criteria, LL = lower limit, UL = upper limit.
* If QC limits are not available, use limits of 80 – 120 % for aqueous and 70 – 130 % for solid samples.

Actions:

QUALITY	%R < 10%	%R = 10% - LL	%R > UL
Positive results	J	J	J
Nondetects results	R	UJ	Accept

Surrogate action should be applied:

If one or more surrogate in the VOC fraction is out of specification, but has a recovery of > 10%.

If any one surrogate in a fraction shows < 10 % recovery.

All criteria were met _____
Criteria were not met
and/or see below __N/A___

VII. A MATRIX SPIKE/MATRIX SPIKE DUPLICATE (MS/MSD)

This data is generated to determine long term precision and accuracy in the analytical method for various matrices. This data alone cannot be used to evaluate the precision and accuracy of individual samples. If any % R in the MS or MSD falls outside the designated range, the reviewer should determine if there are matrix effects, i.e. LCS data are within the QC limits but MS/MSD data are outside QC limit.

1. MS/MSD Recoveries and Precision Criteria

The laboratory should use one MS and a duplicate analysis of an unspiked field sample if target analytes are expected in the sample. If target analytes are not expected, MS/MSD should be analyzed.

List the %Rs, RPD of the compounds which do not meet the criteria.
Sample ID:_____ Matrix/Level:_____

MS OR MSD	COMPOUND	% R	RPD	QC LIMITS	ACTION
_____MS/MSD_are_not_required_as_part_of_Method_TO-15;_blank_spike_used_to_assess____ accuracy_____					

* QC limits are laboratory in-house performance criteria, LL = lower limit, UL = upper limit.
* If QC limits are not available, use limits of 70 – 130 %.

Actions:

QUALITY	%R < LL	%R > UL
Positive results	J	J
Nondetects results	R	Accept

MS/MSD criteria apply only to the unspiked sample, its dilutions, and the associated MS/MSD samples:

If the % R for the affected compounds were < LL (or 70 %), qualify positive results (J) and nondetects (UJ).
If the % R for the affected compounds were > UL (or 130 %), only qualify positive results (J).
If 25 % or more of all MS/MSD %R were < LL (or 70 %) or if two or more MS/MSD %Rs were < 10%, qualify all positive results (J) and reject nondetects (R).

A separate worksheet should be used for each MS/MSD pair.

All criteria were met ____
Criteria were not met
and/or see below __N/A___

VII. B MATRIX SPIKE/MATRIX SPIKE DUPLICATE

MS/MSD – Unspiked Compounds

It should be noted that Method TO-15 does not specify a MS/MSD criteria for the unspiked compounds in the sample. A %RSD of < 50% has therefore been utilized as professional judgment.

If all target analytes were spiked in the MS/MSD, this review element is not applicable.

List the %RSD of the compounds which do not meet the criteria.

Sample ID:_____ Matrix/Level/Unit:_____

COMPOUND	SAMPLE CONC.	MS CONC.	MSD CONC.	% RSD	ACTION

Actions:

* If the % RSD > 50, qualify the positive result in the unspiked samples as estimated (J).
* If the % RSD is not calculated (NC) due to nondetected value, use professional judgment to qualify the data.

All criteria were met __X___
Criteria were not met
and/or see below _____

VIII. LABORATORY CONTROL SAMPLE (LCS) ANALYSIS

This data is generated to determine accuracy of the analytical method for various matrices.

1. LCS Recoveries Criteria

Where LCS spiked with the same analyte at the same concentrations as the MS/MSD? Yes or No. If no make note in data review memo.
List the %R of compounds which do not meet the criteria

LCS ID	COMPOUND	% R	QC LIMIT
LCS/LCSD%_recoveries_and_RPD_within_laboratory_control_limits_except_in_the_cases____			
_described_in_this_document:_____			
_____			
_____1606298A-11A/11AA___	Bromomethane_____	133/132_%_____	70_-_130___

Note: No action taken. Analytes not-detected in sample, non-detects are accepted.

LCS ID	COMPOUND	% R	QC LIMIT
_____1606298A-19A/19AA__	Chloromomethane_____	65/69_%_____	70_-_130___
_____1606298A-18A/18AA__	1,3-butadiene_____	69_%_____	70_-_130___
_____	Ehanol_____	63/62_%_____	70_-_130___
_____	Acetone_____	69_%_____	70_-_130____
_____	Carbon_disulfide_____	66/68_%_____	70_-_130___
_____	Tetrahydrofuran_____	69_%_____	70_-_130___

Note: No action taken, professional judgment. % recoveries within generally acceptable control limits.

* QC limits are laboratory in-house performance criteria, LL = lower limit, UL = upper limit.
* If QC limits are not available, use limits of 70 – 130 %.

Actions:

QUALITY	%R < LL	%R > UL
Positive results	J	J
Nondetects results	R	Accept

All analytes in the associated sample results are qualified for the following criteria.

If 25 % of the LCS recoveries were < LL (or 70 %), qualify all positive results (j) and reject nondetects (R).
If two or more LCS were below 10 %, qualify all positive results as (J) and reject nondetects (R).

2. Frequency Criteria:

Where LCS analyzed at the required frequency and for each matrix? **Yes** or No.

If no, the data may be affected. Use professional judgment to determine the severity of the effect and qualify data accordingly. Discuss any actions below and list the samples affected.

All criteria were met __X___
Criteria were not met
and/or see below _____

IX. LABORATORY DUPLICATE PRECISION

Sample IDs: __LCS/LCSD_(06/16/2016)___ Matrix:___Air____
Sample IDs: __1606298A-01A/-01AA_____ Matrix:___Air____

Laboratory duplicates samples may be taken and analyzed as an indication of overall precision. These analyses measure both field and lab precision; therefore, the results may have more variability than laboratory duplicates which only laboratory performance. It is also expected that soil duplicate results will have a greater variance than water matrices due to difficulties associated with collecting identical field duplicate samples.

The project QAPP should be reviewed for project-specific information.
Suggested criteria: RPD ± 25% for air samples. If both samples and duplicate are <5 SQL, the RPD criteria is doubled.

COMPOUND	SQL	SAMPLE CONC.	DUPLICATE CONC.	RPD	ACTION
RPD within laboratory and generally acceptable control limits.					

Actions:

Qualify as estimated positive results (J) and nondetects (UJ) for the compound that exceeded the above criteria. For organics, only the sample and duplicate will be qualified.

If an RPD cannot be calculated because one or both of the sample results is not detected, the following actions apply:

If one sample result is not detected and the other is greater than 5x the SQL qualify (J/UJ).

If one sample value is not detected and the other is greater than 5x the SQL and the SQLs for the sample and duplicate are significantly different, use professional judgment to determine if qualification is appropriate.

If one sample value is not detected and the other is less than 5x, use professional judgment to determine if qualification is appropriate.

If both sample and duplicate results are not detected, no action is needed.

All criteria were met _____
Criteria were not met
and/or see below __X____

IX. FIELD DUPLICATE PRECISION

Sample IDs: _1606298A-01A/-02A_____ Matrix:_____Air_____
Sample IDs: _1606298A-09A/-10A_____ Matrix:_____Air_____

Field duplicates samples may be taken and analyzed as an indication of overall precision. These analyses measure both field and lab precision; therefore, the results may have more variability than laboratory duplicates which only laboratory performance. It is also expected that soil duplicate results will have a greater variance than water matrices due to difficulties associated with collecting identical field duplicate samples.

The project QAPP should be reviewed for project-specific information.

Suggested criteria: RPD ± 25% for air samples. If both samples and duplicate are < 5 SQL, the RPD criteria is doubled.

COMPOUND	SQL	SAMPLE CONC.	DUPLICATE CONC.	RPD	ACTION
1606298A-01A/-02A					
Ethanol	0.80	8.0	5.8	32 %	Qualify results in sample and duplicate
Acetone	0.80	14	6.2	77 %	
Field duplicate analyzed in this data package. RPD within laboratory control limits for analytes detected above the reporting limits in sample and duplicate except in the cases described in this document.					

Actions:

Qualify as estimated positive results (J) and nondetects (UJ) for the compound that exceeded the above criteria. For organics, only the sample and duplicate will be qualified.

If an RPD cannot be calculated because one or both of the sample results is not detected, the following actions apply:

If one sample result is not detected and the other is greater than 5x the SQL qualify (J/UJ).

If one sample value is not detected and the other is greater than 5x the SQL and the SQLs for the sample and duplicate are significantly different, use professional judgment to determine if qualification is appropriate.

If one sample value is not detected and the other is less than 5x, use professional judgment to determine if qualification is appropriate.

If both sample and duplicate results are not detected, no action is needed.

All criteria were met __X__
Criteria were not met
and/or see below ____

X. INTERNAL STANDARD PERFORMANCE

The assessment of the internal standard (IS) parameter is used to assist the data reviewer in determining the condition of the analytical instrumentation.

List the internal standard area of samples which do not meet the criteria.

* Area of +40% or -40% of the IS area in the associated calibration standard.
* Retention time (RT) within ± 0.06 seconds of the IS area in the associated calibration standard.

DATE	SAMPLE ID	IS OUT	IS AREA	ACCEPTABLE RANGE	ACTION

_Internal_standard_area_and_retention_times_within_laboratory_control_limits_for_both_samples_and_calibration_standards_____

Actions:

1. IS actions should be applied to the compound quantitated with the out-of-control ISs

QUALITY	IS AREA < -40%		IS AREA > + 40%
Positive results	J		J
Nondetected results	R		ACCEPT

2. If a IS retention time varies more than 0.330 seconds, the chromatographic profile for that sample must be examined to determine if any false positive or negative exists. For shifts of a large magnitude, the reviewer may consider partial or total rejection of the data for the sample fraction.

All criteria were met __X__
Criteria were not met
and/or see below ____

XII. SAMPLE QUANTITATION

The sample quantitation evaluation is to verify laboratory quantitation results. In the space below, please show a minimum of one sample calculation:

1606298A-01A

Freon RF = 3.85861

[ ] = (25001)(5.0)/(107202)(3.85861)

= 0.30 ppbv OK

All criteria were met __X__
Criteria were not met
and/or see below _____

XII. QUANTITATION LIMITS

A. Dilution performed

SAMPLE ID	DILUTION FACTOR	REASONS FOR DILUTION
All samples were diluted by a factor of < 2.48 x.		

B. Percent Solids

List samples which have ≤ 50 % solids

Actions:

If the % solids of a soil sample is 10-50%, estimate positive results (J) and nondetects (UJ)

If the % solids of a soil sample is < 10%, estimate positive results (J) and reject nondetects (R)

Project Number:_1606298C/1606298F__
Date:_____06/11-12/2016_____

REVIEW OF VOLATILE ORGANIC PACKAGE

The following guidelines for evaluating volatile organics were created to delineate required validation actions. This document will assist the reviewer in using professional judgment to make more informed decision and in better serving the needs of the data users. The sample results were assessed according to USEPA data validation guidance documents in the following order of precedence: QC criteria from "Compendium Method TO-15. Determination of Volatile Organic Compounds (VOCs) In Air Collected In Specially-Prepared Canisters and Analyzed By Gas Chromatography/Mass Spectrometry (GC/MS), January, 1999"; USEPA Hazardous Waste Support Branch. Validating Air Samples. Volatile Organic Analysis of Ambient Air in Canisters by Method TO-15, (SOP # HW-31. Revision #4. October, 2006). The QC criteria and data validation actions listed on the data review worksheets are from the primary guidance document, unless otherwise noted.

The hardcopied (laboratory name) _Eurofins_-_Air_Toxics_____ data package received has been reviewed and the quality control and performance data summarized. The data review for VOCs included:

Lab. Project/SDG No.: __1606298C/1606298F_____ Sample matrix: ___Air_____
No. of Samples: _____16_____

Trip blank No.: _____-_____
Field blank No.: _____-_____
Equipment blank No.:___-_____
Field duplicate No.:_____1606298C-01A/-1606298C-02A;_1606298C-09A/-1606298C-10A_____

___X___ Data Completeness
___X___ Holding Times
___X___ GC/MS Tuning
___X___ Internal Standard Performance
___X___ Blanks
___X___ Surrogate Recoveries
___N/A_ Matrix Spike/Matrix Spike Duplicate
___X___ Laboratory Control Spikes
___X___ Field Duplicates
___X___ Calibrations
___X___ Compound Identifications
___X___ Compound Quantitation
___X___ Quantitation Limits

Overall Comments:_____Methanol_by_method_TO-15_____
_____

Definition of Qualifiers:
J- Estimated results
U- Compound not detected
R- Rejected data
UJ- Estimated nondetect

Reviewer:____ Rafael Infante _____
Date:_____07/16/2016_____

DATA REVIEW WORKSHEETS

DATA COMPLETENESS

MISSING INFORMATION	DATE LAB. CONTACTED	DATE RECEIVED

All criteria were met __X__
Criteria were not met
and/or see below ____

HOLDING TIMES

The objective of this parameter is to ascertain the validity of the results based on the holding time of the sample from time of collection to the time of analysis.

Complete table for all samples and note the analysis and/or preservation not within criteria

SAMPLE ID	DATE SAMPLED	DATE ANALYZED	pH	ACTION
All samples analyzed within the recommended method holding time. All summa canisters received in good conditions. The Chain of Custody (COC) information for sample B7IA-1D(061016) did not match the entry on the sample tag with regard to sample identification. The information on the COC was used to process and report the sample.				

Criteria

Aqueous samples – 14 days from sample collection for preserved samples (pH $\leq$ 2, 4°C), no air bubbles.
Aqueous samples – 7 days from sample collection for unpreserved samples, 4°C, no air bubbles.
Soil samples- 7 days from sample collection.
Cooler temperature (Criteria: 4 $\pm$ 2 °C): N/A – summa canisters

Actions

If the VOCs vial(s) have air bubbles, estimate positive results (J) and reject nondetects (R).
If the % solids of soil samples is 10-50%, estimates positive results (J) and nondetects (UJ)
If the % solid of soil samples is < 10%, estimate positive results (J) and reject nondetects (R).
If holding times are exceeded but < 14 days beyond criteria, estimate positive results (J) and nondetects (UJ).
If holding times are exceeded but < 28 days beyond criteria, estimate positive results (J) and reject nondetects (R).
If holding times are grossly exceeded (> 28 days beyond criteria), reject all results (R).
If samples were not iced or if the ice were melted (> 10°C), estimate positive results (J) and nondetects (UJ).

All criteria were met __X__
Criteria were not met see below ____

GC/MS TUNING

The assessment of the tuning results is to determine if the sample instrumentation is within the standard tuning QC limits

__X___ The BFB performance results were reviewed and found to be within the specified criteria.

__X___ BFB tuning was performed for every 24 hours of sample analysis.

If no, use professional judgment to determine whether the associated data should be accepted, qualified or rejected.

List the samples affected:

_____

If mass calibration is in error, all associated data are rejected.

All criteria were met _X_
Criteria were not met
and/or see below ____

CALIBRATION VERIFICATION

Compliance requirements for satisfactory instrument calibration are established to ensure that the instrument is capable of producing and maintaining acceptable quantitative data.

Date of initial calibration:_____06/17/2016__
Dates of continuing calibration:___06/17/2016__
Instrument ID numbers:____MSD-14_____
Matrix/Level:_____Air/low_____

DATE	LAB FILE ID#	CRITERIA OUT RFs, %RSD, %D, r	COMPOUND	SAMPLES AFFECTED
One point calibration. Initial and continuing calibrations meet method specific requirements. Initial calibration retention times meet method specific requirements.				

Criteria

All RFs must be > 0.05 regardless of method requirements for SPCC.
All %RSD must be ≤ 15 % regardless of method requirements for CCC.
All %Ds must be ≤ 30% regardless of method requirements for CCC.
Method TO-15 does not specify criterion for the curve correlation coefficient (r). A limit for r of ≥ 0.995 has therefore been utilized as professional judgment.

Actions

If any compound has an initial RF or a continuing RF of < 0.05, estimate positive results (J) and reject nondetects (R), regardless of method requirements.
If any compound has a %RSD > 15%, estimate positive results (J) and use professional judgment to qualify nondetects.
If any compound has a %RSD > 90%, estimate positive results (J) and reject nondetects (R).
If any compound has a % D > 30%, estimate positive results (J) and reject nondetects (R).
If any compound has a % D > 30%, estimate positive results (J) and nondetects (UJ).
If any compound has a % D > 90%, estimate positive results (J) and reject nondetects (R).
If any compound has r < 0.995, estimate positive results and nondetects.

A separate worksheet should be filled for each initial curve

All criteria were met __X__
Criteria were not met
and/or see below _____

V A. BLANK ANALYSIS RESULTS (Sections 1 & 2)

The assessment of the blank analysis results is to determine the existence and magnitude of contamination problems. The criteria for evaluation of blanks apply only to blanks associated with the samples, including trip, equipment, and laboratory blanks. If problems with any blanks exist, all data associated with the case must be carefully evaluated to determine whether or not there is an inherent variability in the data for the case, or if the problem is an isolated occurrence not affecting other data.

List the contamination in the blanks below. High and low levels blanks must be treated separately.

Laboratory blanks

DATE ANALYZED	LAB ID	LEVEL/ MATRIX	COMPOUND	CONCENTRATION UNITS
All_method_blank_meeth_method_specific_criteria				

Field/Equipment/Trip blank

DATE ANALYZED	LAB ID	LEVEL/ MATRIX	COMPOUND	CONCENTRATION UNITS
No_field/trip/equipment_blanks_analyzed_with_this_data_package.				

All criteria were met __X__
Criteria were not met
and/or see below _____

V B. BLANK ANALYSIS RESULTS (Section 3)

Blank Actions

Action Levels (ALs) should be based upon the highest concentration of contaminant determined in any blank. Do not qualify any blank with another blank. The ALs for samples which have been diluted should be corrected for the sample dilution factor and/or % moisture, where applicable. No positive sample results should be reported unless the concentration of the compound in the samples exceeds the ALs:

ALs = 10x the amount of common contaminants (methylene chloride, acetone, 2-butanone, and toluene)
ALs = 5x for any other compounds

Specific actions are as follows:

If the concentration is < sample quantitation limit (SQL) and ≤ AL, report the compound as not detected (U) at the SQL.
If the concentration is ≥ SQL but ≤ AL, report the compound as not detected (U) at the reported concentration.
If the concentration is ≥ SQL and > AL, report the concentration unqualified.

Notes:

High and low level blanks must be treated separately
Compounds qualified "U" for blank contamination are still considered "hits" when qualifying for calibration criteria.

CONTAMINATION SOURCE/LEVEL	COMPOUND	CONC/UNITS	AL/UNITS	SQL	AFFECTED SAMPLES

All criteria were met __X__
Criteria were not met
and/or see below _____

SURROGATE SPIKE RECOVERIES

Laboratory performance of individual samples is established by evaluation of surrogate spike recoveries. All samples are spiked with surrogate compounds prior to sample analysis. The accuracy of the analysis is measured by the surrogate percent recovery. Since the effects of the sample matrix are frequently outside the control of the laboratory and may present relatively unique problems, the validation of data is frequently subjective and demands analytical experience and professional judgment.
List the percent recoveries (%Rs) which do not meet the criteria for surrogate recovery.
Matrix: solid/aqueous

SAMPLE ID	SURROGATE COMPOUND			ACTION
	1,2-DICHLOROETHANE-d4	Toluene-d8	4-BFB	

_Surrogate_recoveries_within_laboratory_control_limits_____

QC Limits* (Air)

_____LL_to_UL___70__to_130__ _70__to_130_ _70__to_130__

* QC limits are laboratory in-house performance criteria, LL = lower limit, UL = upper limit.
* If QC limits are not available, use limits of 80 – 120 % for aqueous and 70 – 130 % for solid samples.

Actions:

QUALITY	%R < 10%	%R = 10% - LL	%R > UL
Positive results	J	J	J
Nondetects results	R	UJ	Accept

Surrogate action should be applied:

If one or more surrogate in the VOC fraction is out of specification, but has a recovery of > 10%.

If any one surrogate in a fraction shows < 10 % recovery.

All criteria were met _____
Criteria were not met
and/or see below __N/A____

VII. A MATRIX SPIKE/MATRIX SPIKE DUPLICATE (MS/MSD)

This data is generated to determine long term precision and accuracy in the analytical method for various matrices. This data alone cannot be used to evaluate the precision and accuracy of individual samples. If any % R in the MS or MSD falls outside the designated range, the reviewer should determine if there are matrix effects, i.e. LCS data are within the QC limits but MS/MSD data are outside QC limit.

1. MS/MSD Recoveries and Precision Criteria

The laboratory should use one MS and a duplicate analysis of an unspiked field sample if target analytes are expected in the sample. If target analytes are not expected, MS/MSD should be analyzed.

List the %Rs, RPD of the compounds which do not meet the criteria.
Sample ID:_____ Matrix/Level:_____

MS OR MSD	COMPOUND	% R	RPD	QC LIMITS	ACTION
MS/MSD are not required as part of Method TO-15; blank spike used to assess accuracy					

* QC limits are laboratory in-house performance criteria, LL = lower limit, UL = upper limit.
* If QC limits are not available, use limits of 70 – 130 %.

Actions:

QUALITY	%R < LL	%R > UL
Positive results	J	J
Nondetects results	R	Accept

MS/MSD criteria apply only to the unspiked sample, its dilutions, and the associated MS/MSD samples:

If the % R for the affected compounds were < LL (or 70 %), qualify positive results (J) and nondetects (UJ).
If the % R for the affected compounds were > UL (or 130 %), only qualify positive results (J).
If 25 % or more of all MS/MSD %R were < LL (or 70 %) or if two or more MS/MSD %Rs were < 10%, qualify all positive results (J) and reject nondetects (R).

A separate worksheet should be used for each MS/MSD pair.

All criteria were met ____
Criteria were not met
and/or see below __N/A__

VII. B MATRIX SPIKE/MATRIX SPIKE DUPLICATE

MS/MSD – Unspiked Compounds

It should be noted that Method TO-15 does not specify a MS/MSD criteria for the unspiked compounds in the sample. A %RSD of < 50% has therefore been utilized as professional judgment.

If all target analytes were spiked in the MS/MSD, this review element is not applicable.

List the %RSD of the compounds which do not meet the criteria.

Sample ID:_____ Matrix/Level/Unit:_____

COMPOUND	SAMPLE CONC.	MS CONC.	MSD CONC.	% RSD	ACTION

Actions:

* If the % RSD > 50, qualify the positive result in the unspiked samples as estimated (J).
* If the % RSD is not calculated (NC) due to nondetected value, use professional judgment to qualify the data.

All criteria were met __X__
Criteria were not met
and/or see below _____

VIII. LABORATORY CONTROL SAMPLE (LCS) ANALYSIS

This data is generated to determine accuracy of the analytical method for various matrices.

1. LCS Recoveries Criteria

Where LCS spiked with the same analyte at the same concentrations as the MS/MSD? Yes or No. If no make note in data review memo.
List the %R of compounds which do not meet the criteria

LCS ID COMPOUND % R QC LIMIT

___No_LCS/LCSD_(Blank_spike)_analyzed_in_this_data_package._____

* QC limits are laboratory in-house performance criteria, LL = lower limit, UL = upper limit.
* If QC limits are not available, use limits of 70 – 130 %.

Actions:

QUALITY	%R < LL	%R > UL
Positive results	J	J
Nondetects results	R	Accept

All analytes in the associated sample results are qualified for the following criteria.

If 25 % of the LCS recoveries were < LL (or 70 %), qualify all positive results (j) and reject nondetects (R).
If two or more LCS were below 10 %, qualify all positive results as (J) and reject nondetects (R).

2. Frequency Criteria:

Where LCS analyzed at the required frequency and for each matrix? Yes or **No**.
If no, the data may be affected. Use professional judgment to determine the severity of the effect and qualify data accordingly. Discuss any actions below and list the samples affected.

All criteria were met __X__
Criteria were not met
and/or see below _____

IX. LABORATORY DUPLICATE PRECISION

Sample IDs:__1606298C-01A/02A_____ Matrix:_____Air_____
Sample IDs:__1606298C-09A/10A_____ Matrix:_____Air_____

Field duplicates samples may be taken and analyzed as an indication of overall precision. These analyses measure both field and lab precision; therefore, the results may have more variability than laboratory duplicates which only laboratory performance. It is also expected that soil duplicate results will have a greater variance than water matrices due to difficulties associated with collecting identical field duplicate samples.

The project QAPP should be reviewed for project-specific information.
Suggested criteria: RPD ± 25% for air samples. If both samples and duplicate are <5 SQL, the RPD criteria is doubled.

COMPOUND	SQL	SAMPLE CONC.	DUPLICATE CONC.	RPD	ACTION
Field duplicates analyzed with this data package. RPD within laboratory and generally acceptable control limits.					

Actions:

Qualify as estimated positive results (J) and nondetects (UJ) for the compound that exceeded the above criteria. For organics, only the sample and duplicate will be qualified.

If an RPD cannot be calculated because one or both of the sample results is not detected, the following actions apply:

If one sample result is not detected and the other is greater than 5x the SQL qualify (J/UJ).

If one sample value is not detected and the other is greater than 5x the SQL and the SQLs for the sample and duplicate are significantly different, use professional judgment to determine if qualification is appropriate.

If one sample value is not detected and the other is less than 5x, use professional judgment to determine if qualification is appropriate.

If both sample and duplicate results are not detected, no action is needed.

All criteria were met _X_
Criteria were not met
and/or see below ____

X. INTERNAL STANDARD PERFORMANCE

The assessment of the internal standard (IS) parameter is used to assist the data reviewer in determining the condition of the analytical instrumentation.

List the internal standard area of samples which do not meet the criteria.

* Area of +40% or -40% of the IS area in the associated calibration standard.
* Retention time (RT) within ± 0.06 seconds of the IS area in the associated calibration standard.

DATE	SAMPLE ID	IS OUT	IS AREA	ACCEPTABLE RANGE	ACTION

_Internal_standard_area_and_retention_times_within_laboratory_control_limits_for_both_samples _and_calibration_standards_____

Actions:

1. IS actions should be applied to the compound quantitated with the out-of-control ISs

QUALITY	IS AREA < -40%		IS AREA > + 40%
Positive results	J		J
Nondetected results	R		ACCEPT

2. If a IS retention time varies more than 0.330 seconds, the chromatographic profile for that sample must be examined to determine if any false positive or negative exists. For shifts of a large magnitude, the reviewer may consider partial or total rejection of the data for the sample fraction.

All criteria were met __X__
Criteria were not met
and/or see below _____

XII. SAMPLE QUANTITATION

The sample quantitation evaluation is to verify laboratory quantitation results. In the space below, please show a minimum of one sample calculation:

1606298C-01A

4-Bromofluorobenzene RF = 0.493

[ ] = (244049)(400)/(479638)(0.493)

= 413 ppbv OK

All criteria were met __X__
Criteria were not met
and/or see below _____

XII. QUANTITATION LIMITS

A. Dilution performed

SAMPLE ID	DILUTION FACTOR	REASONS FOR DILUTION
All samples diluted by a factor of less than 2.48.		

B. Percent Solids

List samples which have ≤ 50 % solids

_____
_____
_____
_____
_____
_____

Actions:

If the % solids of a soil sample is 10-50%, estimate positive results (J) and nondetects (UJ)

If the % solids of a soil sample is < 10%, estimate positive results (J) and reject nondetects (R)

DATA REVIEW WORKSHEETS

Project Number:____1606298D/1606298G_____
Date:_____06/11-12/2016_____

REVIEW OF VOLATILE ORGANIC PACKAGE

The following guidelines for evaluating volatile organics were created to delineate required validation actions. This document will assist the reviewer in using professional judgment to make more informed decision and in better serving the needs of the data users. The sample results were assessed according to USEPA data validation guidance documents in the following order of precedence: QC criteria from ASTM D-1946 method for measuring permanent gases and light hydrocarbons in refinery and other sources samples using gas chromatography (GC) and a thermal conductivity detector (TCD) and/or flame ionization detection (FID). Validating Air Samples. Volatile Organic Analysis of Ambient Air in Canisters by Method TO-15, (SOP # HW-31. Revision #4. October, 2006). The QC criteria and data validation actions listed on the data review worksheets are from the primary guidance document, unless otherwise noted.
The hardcopied (laboratory name) _Eurofins_____ data package received has been reviewed and the quality control and performance data summarized. The data review for VOCs included:

Lab. Project/SDG No.: __1606298D/1606298G_____ Sample matrix: ___Air_____
No. of Samples: _____16_____

Trip blank No.: ____-_____
Field blank No.: _____-_____
Equipment blank No.:___-_____
Field duplicate No.:____1606298D-01A/1606298D-02A;_ 1606298D-01A/1606298D-02A_____

___X___ Data Completeness
___X___ Holding Times
___N/A_ GC/MS Tuning
___N/A_ Internal Standard Performance
___X___ Blanks
___N/A_ Surrogate Recoveries
___N/A_ Matrix Spike/Matrix Spike Duplicate
___X___ Laboratory Control Spikes
___X___ Field Duplicates
___X___ Calibrations
___X___ Compound Identifications
___X___ Compound Quantitation
___X___ Quantitation Limits

Overall Comments:_Methane_by_ASTM_method_D-1946_(modified)_____
_____

Definition of Qualifiers:
J- Estimated results
U- Compound not detected
R- Rejected data
UJ- Estimated nondetect

Reviewer:__ Rafael Infante _____ Date:__ 07/11/2016_____

DATA REVIEW WORKSHEETS

DATA COMPLETENESS

MISSING INFORMATION	DATE LAB. CONTACTED	DATE RECEIVED

All criteria were met __X__
Criteria were not met
and/or see below _____

HOLDING TIMES

The objective of this parameter is to ascertain the validity of the results based on the holding time of the sample from time of collection to the time of analysis.

Complete table for all samples and note the analysis and/or preservation not within criteria

SAMPLE ID	DATE SAMPLED	DATE ANALYZED	pH	ACTION
All samples analyzed within the recommended method holding time. All summa canisters received in good conditions. The Chain of Custody (COC) information for sample B7IA-1D(061016) did not match the entry on the sample tag with regard to sample identification. The information on the COC was used to process and report the sample.				

Criteria

Aqueous samples – 14 days from sample collection for preserved samples (pH $\leq$ 2, 4°C), no air bubbles.
Aqueous samples – 7 days from sample collection for unpreserved samples, 4°C, no air bubbles.
Soil samples- 7 days from sample collection.
Cooler temperature (Criteria: 4 $\pm$ 2 °C): N/A – summa canisters

Actions

If the VOCs vial(s) have air bubbles, estimate positive results (J) and reject nondetects (R).
If the % solids of soil samples is 10-50%, estimates positive results (J) and nondetects (UJ)
If the % solid of soil samples is < 10%, estimate positive results (J) and reject nondetects (R).
If holding times are exceeded but < 14 days beyond criteria, estimate positive results (J) and nondetects (UJ).
If holding times are exceeded but < 28 days beyond criteria, estimate positive results (J) and reject nondetects (R).
If holding times are grossly exceeded (> 28 days beyond criteria), reject all results (R).
If samples were not iced or if the ice were melted (> 10°C), estimate positive results (J) and nondetects (UJ).

All criteria were met __N/A___
Criteria were not met see below ____

GC/MS TUNING

The assessment of the tuning results is to determine if the sample instrumentation is within the standard tuning QC limits

__N/A_ The BFB performance results were reviewed and found to be within the specified criteria.

__N/A_ BFB tuning was performed for every 24 hours of sample analysis.

If no, use professional judgment to determine whether the associated data should be accepted, qualified or rejected.

List the samples affected:

_____

If mass calibration is in error, all associated data are rejected.

Note: Samples analyzed using GC with either TCD or FID detection.

All criteria were met _X_
Criteria were not met
and/or see below ____

CALIBRATION VERIFICATION

Compliance requirements for satisfactory instrument calibration are established to ensure that the instrument is capable of producing and maintaining acceptable quantitative data.

Date of initial calibration:_____01/15/16_____
Dates of continuing calibration:_06/16/16;_06/24/24____
Instrument ID numbers:_____GC-10_____
Matrix/Level:_____Air/low_____

DATE	LAB FILE ID#	CRITERIA OUT RFs, %RSD, %D, r	COMPOUND	SAMPLES AFFECTED
Initial and continuing calibrations meet method specific requirements. Initial calibration retention times meet method specific requirements.				

Criteria

All RFs must be > 0.05 regardless of method requirements for SPCC.
All %RSD must be ≤ 15 % regardless of method requirements for CCC.
All %Ds must be ≤ 30% regardless of method requirements for CCC.
Method TO-15 does not specify criterion for the curve correlation coefficient (r). A limit for r of ≥ 0.995 has therefore been utilized as professional judgment.

Actions

If any compound has an initial RF or a continuing RF of < 0.05, estimate positive results (J) and reject nondetects (R), regardless of method requirements.
If any compound has a %RSD > 15%, estimate positive results (J) and use professional judgment to qualify nondetects.
If any compound has a %RSD > 90%, estimate positive results (J) and reject nondetects (R).
If any compound has a % D > 30%, estimate positive results (J) and reject nondetects (R).
If any compound has a % D > 30%, estimate positive results (J) and nondetects (UJ).
If any compound has a % D > 90%, estimate positive results (J) and reject nondetects (R).
If any compound has r < 0.995, estimate positive results and nondetects.

A separate worksheet should be filled for each initial curve

All criteria were met __X__
Criteria were not met
and/or see below _____

V A. BLANK ANALYSIS RESULTS (Sections 1 & 2)

The assessment of the blank analysis results is to determine the existence and magnitude of contamination problems. The criteria for evaluation of blanks apply only to blanks associated with the samples, including trip, equipment, and laboratory blanks. If problems with any blanks exist, all data associated with the case must be carefully evaluated to determine whether or not there is an inherent variability in the data for the case, or if the problem is an isolated occurrence not affecting other data.

List the contamination in the blanks below. High and low levels blanks must be treated separately.

Laboratory blanks

DATE ANALYZED	LAB ID	LEVEL/ MATRIX	COMPOUND	CONCENTRATION UNITS
All_method_blank_meeth_method_specific_criteria				

Field/Equipment/Trip blank

DATE ANALYZED	LAB ID	LEVEL/ MATRIX	COMPOUND	CONCENTRATION UNITS
No_field/trip/equipment_blanks_analyzed_with_this_data_package.				

All criteria were met __X__
Criteria were not met
and/or see below _____

V B. BLANK ANALYSIS RESULTS (Section 3)

Blank Actions

Action Levels (ALs) should be based upon the highest concentration of contaminant determined in any blank. Do not qualify any blank with another blank. The ALs for samples which have been diluted should be corrected for the sample dilution factor and/or % moisture, where applicable. No positive sample results should be reported unless the concentration of the compound in the samples exceeds the ALs:

ALs = 10x the amount of common contaminants (methylene chloride, acetone, 2-butanone, and toluene)
ALs = 5x for any other compounds

Specific actions are as follows:

If the concentration is < sample quantitation limit (SQL) and ≤ AL, report the compound as not detected (U) at the SQL.
If the concentration is ≥ SQL but ≤ AL, report the compound as not detected (U) at the reported concentration.
If the concentration is ≥ SQL and > AL, report the concentration unqualified.

Notes:

High and low level blanks must be treated separately
Compounds qualified "U" for blank contamination are still considered "hits" when qualifying for calibration criteria.

CONTAMINATION SOURCE/LEVEL	COMPOUND	CONC/UNITS	AL/UNITS	SQL	AFFECTED SAMPLES

All criteria were met __N/A___
Criteria were not met
and/or see below _____

SURROGATE SPIKE RECOVERIES

Laboratory performance of individual samples is established by evaluation of surrogate spike recoveries. All samples are spiked with surrogate compounds prior to sample analysis. The accuracy of the analysis is measured by the surrogate percent recovery. Since the effects of the sample matrix are frequently outside the control of the laboratory and may present relatively unique problems, the validation of data is frequently subjective and demands analytical experience and professional judgment.
List the percent recoveries (%Rs) which do not meet the criteria for surrogate recovery.
Matrix: solid/aqueous

SAMPLE ID	SURROGATE COMPOUND	ACTION
_Surrogate_standards_not_required_by_the_method._____		
_____	_____	
_____	_____	
_____	_____	
_____	_____	
_____	_____	

QC Limits* (Air)
_____LL_to_UL_____to_____ ___to_____ ___to_____ ___to_____

* QC limits are laboratory in-house performance criteria, LL = lower limit, UL = upper limit.
* If QC limits are not available, use limits of 80 – 120 % for aqueous and 70 – 130 % for solid samples.

Actions:

QUALITY	%R < 10%	%R = 10% - LL	%R > UL
Positive results	J	J	J
Nondetects results	R	UJ	Accept

Surrogate action should be applied:

If one or more surrogate in the VOC fraction is out of specification, but has a recovery of > 10%.

If any one surrogate in a fraction shows < 10 % recovery.

All criteria were met _____
Criteria were not met
and/or see below __N/A___

VII. A MATRIX SPIKE/MATRIX SPIKE DUPLICATE (MS/MSD)

This data is generated to determine long term precision and accuracy in the analytical method for various matrices. This data alone cannot be used to evaluate the precision and accuracy of individual samples. If any % R in the MS or MSD falls outside the designated range, the reviewer should determine if there are matrix effects, i.e. LCS data are within the QC limits but MS/MSD data are outside QC limit.

1. MS/MSD Recoveries and Precision Criteria

The laboratory should use one MS and a duplicate analysis of an unspiked field sample if target analytes are expected in the sample. If target analytes are not expected, MS/MSD should be analyzed.

List the %Rs, RPD of the compounds which do not meet the criteria.

Sample ID:_____-_____ Matrix/Level:_____-_____

MS OR MSD	COMPOUND	% R	RPD	QC LIMITS	ACTION
_MS/MSD_are_not_required_as_part_of_ASTM-method_D-1946;_blank_spike_used_to_assess_ _accuracy					

* QC limits are laboratory in-house performance criteria, LL = lower limit, UL = upper limit.
* If QC limits are not available, use limits of 70 – 130 %.

Actions:

QUALITY	%R < LL	%R > UL
Positive results	J	J
Nondetects results	R	Accept

MS/MSD criteria apply only to the unspiked sample, its dilutions, and the associated MS/MSD samples:

If the % R for the affected compounds were < LL (or 70 %), qualify positive results (J) and nondetects (UJ).
If the % R for the affected compounds were > UL (or 130 %), only qualify positive results (J).
If 25 % or more of all MS/MSD %R were < LL (or 70 %) or if two or more MS/MSD %Rs were < 10%, qualify all positive results (J) and reject nondetects (R).

A separate worksheet should be used for each MS/MSD pair.

All criteria were met ____
Criteria were not met
and/or see below __N/A__

VII. B MATRIX SPIKE/MATRIX SPIKE DUPLICATE

MS/MSD – Unspiked Compounds

It should be noted that Method TO-15 does not specify a MS/MSD criteria for the unspiked compounds in the sample. A %RSD of < 50% has therefore been utilized as professional judgment.

If all target analytes were spiked in the MS/MSD, this review element is not applicable.

List the %RSD of the compounds which do not meet the criteria.

Sample ID:_____ Matrix/Level/Unit:_____

COMPOUND	SAMPLE CONC.	MS CONC.	MSD CONC.	% RSD	ACTION

Actions:

* If the % RSD > 50, qualify the positive result in the unspiked samples as estimated (J).
* If the % RSD is not calculated (NC) due to nondetected value, use professional judgment to qualify the data.

All criteria were met __X__
Criteria were not met
and/or see below _____

VIII. LABORATORY CONTROL SAMPLE (LCS) ANALYSIS

This data is generated to determine accuracy of the analytical method for various matrices.

1. LCS Recoveries Criteria

Where LCS spiked with the same analyte at the same concentrations as the MS/MSD? Yes or No. If no make note in data review memo.
List the %R of compounds which do not meet the criteria

LCS ID	COMPOUND	% R	QC LIMIT

____LCS/LCSD_(Blank_spike)_analyzed_in_this_data_package;_recoveries_and_RPD_____
____within_laboratory_control_limits._____

* QC limits are laboratory in-house performance criteria, LL = lower limit, UL = upper limit.
* If QC limits are not available, use limits of 70 – 130 %.

Actions:

QUALITY	%R < LL	%R > UL
Positive results	J	J
Nondetects results	R	Accept

All analytes in the associated sample results are qualified for the following criteria.

If 25 % of the LCS recoveries were < LL (or 70 %), qualify all positive results (j) and reject nondetects (R).
If two or more LCS were below 10 %, qualify all positive results as (J) and reject nondetects (R).

2. Frequency Criteria:

Where LCS analyzed at the required frequency and for each matrix? Yes or No.
If no, the data may be affected. Use professional judgment to determine the severity of the effect and qualify data accordingly. Discuss any actions below and list the samples affected.

All criteria were met __X__
Criteria were not met
and/or see below _____

IX. FIELD/LABORATORY DUPLICATE PRECISION

Sample ID_LCS/LCSD_(laboratory_duplicate)____ Matrix:___Air___
Sample ID_1606298D-01A/02A_(field_duplicate)_ Matrix:___Air___
Sample ID_1606298D-09A/10A_(field_duplicate)_ Matrix:___Air___

Field/laboratory duplicates samples may be taken and analyzed as an indication of overall precision. These analyses measure both field and lab precision; therefore, the results may have more variability than laboratory duplicates which only laboratory performance. It is also expected that soil duplicate results will have a greater variance than water matrices due to difficulties associated with collecting identical field duplicate samples.

The project QAPP should be reviewed for project-specific information.
Suggested criteria: RPD ± 25% for air samples. If both samples and duplicate are <5 SQL, the RPD criteria is doubled.

COMPOUND	SQL	SAMPLE CONC.	DUPLICATE CONC.	RPD	ACTION
RPD for laboratory duplicate (LCS/LCSD) and field duplicates within laboratory control limits.					

Actions:

Qualify as estimated positive results (J) and nondetects (UJ) for the compound that exceeded the above criteria. For organics, only the sample and duplicate will be qualified.

If an RPD cannot be calculated because one or both of the sample results is not detected, the following actions apply:

If one sample result is not detected and the other is greater than 5x the SQL qualify (J/UJ).

If one sample value is not detected and the other is greater than 5x the SQL and the SQLs for the sample and duplicate are significantly different, use professional judgment to determine if qualification is appropriate.

If one sample value is not detected and the other is less than 5x, use professional judgment to determine if qualification is appropriate.

If both sample and duplicate results are not detected, no action is needed.

All criteria were met __N/A___
Criteria were not met
and/or see below _____

X. INTERNAL STANDARD PERFORMANCE

The assessment of the internal standard (IS) parameter is used to assist the data reviewer in determining the condition of the analytical instrumentation.

List the internal standard area of samples which do not meet the criteria.

* Area of +40% or -40% of the IS area in the associated calibration standard.
* Retention time (RT) within ± 0.06 seconds of the IS area in the associated calibration standard.

DATE	SAMPLE ID	IS OUT	IS AREA	ACCEPTABLE RANGE	ACTION

_Internal_standard_not_required_by_the_method._Samples_quantified_by_external_standard___
_method_____

Actions:

1. IS actions should be applied to the compound quantitated with the out-of-control ISs

QUALITY	IS AREA < -40%		IS AREA > + 40%
Positive results	J		J
Nondetected results	R		ACCEPT

2. If a IS retention time varies more than 0.330 seconds, the chromatographic profile for that sample must be examined to determine if any false positive or negative exists. For shifts of a large magnitude, the reviewer may consider partial or total rejection of the data for the sample fraction.

All criteria were met _X_
Criteria were not met
and/or see below ____

XII. SAMPLE QUANTITATION

The sample quantitation evaluation is to verify laboratory quantitation results. In the space below, please show a minimum of one sample calculation:

1606298D-01A

Methane RF = 226379851

[ ] = (28128)/(226379851)

= 0.000124 % OK

All criteria were met __X__
Criteria were not met
and/or see below _____

XII. QUANTITATION LIMITS

A. Dilution performed

SAMPLE ID	DILUTION FACTOR	REASONS FOR DILUTION
All samples diluted by a factor of less than 3.22		

B. Percent Solids

List samples which have ≤ 50 % solids

_____
_____
_____
_____
_____
_____

Actions:

If the % solids of a soil sample is 10-50%, estimate positive results (J) and nondetects (UJ)

If the % solids of a soil sample is < 10%, estimate positive results (J) and reject nondetects (R)

DATA REVIEW WORKSHEETS

Project Number:__1606272____
Date:_____05/14-16/2016___

REVIEW OF VOLATILE ORGANIC PACKAGE

The following guidelines for evaluating volatile organics were created to delineate required validation actions. This document will assist the reviewer in using professional judgment to make more informed decision and in better serving the needs of the data users. The sample results were assessed according to USEPA data validation guidance documents in the following order of precedence: QC criteria from "Compendium Method TO-15. Determination of Volatile Organic Compounds (VOCs) In Air Collected In Specially-Prepared Canisters and Analyzed By Gas Chromatography/Mass Spectrometry (GC/MS), January, 1999"; USEPA Hazardous Waste Support Branch. Validating Air Samples. Volatile Organic Analysis of Ambient Air in Canisters by Method TO-15, (SOP # HW-31. Revision #4. October, 2006). The QC criteria and data validation actions listed on the data review worksheets are from the primary guidance document, unless otherwise noted.

The hardcopied (laboratory name) _Eurofins_-_Air_Toxics_____ data package received has been reviewed and the quality control and performance data summarized. The data review for VOCs included:

Lab. Project/SDG No.: __1606272_____ Sample matrix: ___Air_____
No. of Samples: _____16_____

Trip blank No.: _____-_____
Field blank No.: _____-_____
Equipment blank No.:___-_____
Field duplicate No.:_____1606272-01A/1606272-02A;_ 1606272-09A/1606272-10A_____

___X___ Data Completeness
___X___ Holding Times
___X___ GC/MS Tuning
___X___ Internal Standard Performance
___X___ Blanks
___X___ Surrogate Recoveries
___N/A_ Matrix Spike/Matrix Spike Duplicate
___X___ Laboratory Control Spikes
___X___ Field Duplicates
___X___ Calibrations
___X___ Compound Identifications
___X___ Compound Quantitation
___X___ Quantitation Limits

Overall Comments:_____Naphthalene_by_method_TO-17_____
_____

Definition of Qualifiers:
J- Estimated results
U- Compound not detected
R- Rejected data
UJ- Estimated nondetect

Reviewer:_____ Rafael DeFaust _____
Date:_____07/11/2016_____

DATA REVIEW WORKSHEETS

DATA COMPLETENESS

MISSING INFORMATION	DATE LAB. CONTACTED	DATE RECEIVED

DATA REVIEW WORKSHEETS

All criteria were met __X__
Criteria were not met
and/or see below ____

HOLDING TIMES

The objective of this parameter is to ascertain the validity of the results based on the holding time of the sample from time of collection to the time of analysis.

Complete table for all samples and note the analysis and/or preservation not within criteria

SAMPLE ID	DATE SAMPLED	DATE ANALYZED	pH	ACTION
All samples analyzed within the recommended method holding time. Samples received in good conditions and no receiving discrepancies were observed.				

Criteria

Aqueous samples – 14 days from sample collection for preserved samples (pH $\leq$ 2, 4°C), no air bubbles.
Aqueous samples – 7 days from sample collection for unpreserved samples, 4°C, no air bubbles.
Soil samples- 7 days from sample collection.
Cooler temperature (Criteria: 4 $\pm$ 2 °C): 3.4°C

Actions

If the VOCs vial(s) have air bubbles, estimate positive results (J) and reject nondetects (R).
If the % solids of soil samples is 10-50%, estimates positive results (J) and nondetects (UJ)
If the % solid of soil samples is < 10%, estimate positive results (J) and reject nondetects (R).
If holding times are exceeded but < 14 days beyond criteria, estimate positive results (J) and nondetects (UJ).
If holding times are exceeded but < 28 days beyond criteria, estimate positive results (J) and reject nondetects (R).
If holding times are grossly exceeded (> 28 days beyond criteria), reject all results (R).
If samples were not iced or if the ice were melted (> 10°C), estimate positive results (J) and nondetects (UJ).

DATA REVIEW WORKSHEETS

All criteria were met __X__
Criteria were not met see below ____

GC/MS TUNING

The assessment of the tuning results is to determine if the sample instrumentation is within the standard tuning QC limits

__X___ The BFB performance results were reviewed and found to be within the specified criteria.

__X___ BFB tuning was performed for every 24 hours of sample analysis.

If no, use professional judgment to determine whether the associated data should be accepted, qualified or rejected.

List the samples affected:
_____

If mass calibration is in error, all associated data are rejected.

DATA REVIEW WORKSHEETS

All criteria were met __X__
Criteria were not met
and/or see below _____

CALIBRATION VERIFICATION

Compliance requirements for satisfactory instrument calibration are established to ensure that the instrument is capable of producing and maintaining acceptable quantitative data.

Date of initial calibration:_____06/14-15/16_____
Dates of continuing calibration:__06/15/16;_06/17/16___
Instrument ID numbers:_____MSD-6_____
Matrix/Level:_____Air/low_____

DATE	LAB FILE ID#	CRITERIA OUT RFs, %RSD, %D, r	COMPOUND	SAMPLES AFFECTED
Initial and continuing calibrations meet method specific requirements. Initial calibration retention times meet method specific requirements. Desorption efficiency verification for Naphthalene 99.7 and 99.9 %; meet method specific requirements.				

Criteria

All RFs must be > 0.05 regardless of method requirements for SPCC.
All %RSD must be ≤ 15 % regardless of method requirements for CCC.
All %Ds must be ≤ 30% regardless of method requirements for CCC.
Method TO-15 does not specify criterion for the curve correlation coefficient (r). A limit for r of ≥ 0.995 has therefore been utilized as professional judgment.

Actions

If any compound has an initial RF or a continuing RF of < 0.05, estimate positive results (J) and reject nondetects (R), regardless of method requirements.
If any compound has a %RSD > 15%, estimate positive results (J) and use professional judgment to qualify nondetects.
If any compound has a %RSD > 90%, estimate positive results (J) and reject nondetects (R).
If any compound has a % D > 30%, estimate positive results (J) and reject nondetects (R).
If any compound has a % D > 30%, estimate positive results (J) and nondetects (UJ).
If any compound has a % D > 90%, estimate positive results (J) and reject nondetects (R).
If any compound has r < 0.995, estimate positive results and nondetects.

A separate worksheet should be filled for each initial curve

All criteria were met __X__
Criteria were not met
and/or see below _____

V A. BLANK ANALYSIS RESULTS (Sections 1 & 2)

The assessment of the blank analysis results is to determine the existence and magnitude of contamination problems. The criteria for evaluation of blanks apply only to blanks associated with the samples, including trip, equipment, and laboratory blanks. If problems with any blanks exist, all data associated with the case must be carefully evaluated to determine whether or not there is an inherent variability in the data for the case, or if the problem is an isolated occurrence not affecting other data.

List the contamination in the blanks below. High and low levels blanks must be treated separately.

Laboratory blanks

DATE ANALYZED	LAB ID	LEVEL/ MATRIX	COMPOUND	CONCENTRATION UNITS
All_method_blank_meeth_method_specific_criteria				

Field/Equipment/Trip blank

DATE ANALYZED	LAB ID	LEVEL/ MATRIX	COMPOUND	CONCENTRATION UNITS

All criteria were met __X__
Criteria were not met
and/or see below ____

V B. BLANK ANALYSIS RESULTS (Section 3)

Blank Actions

Action Levels (ALs) should be based upon the highest concentration of contaminant determined in any blank. Do not qualify any blank with another blank. The ALs for samples which have been diluted should be corrected for the sample dilution factor and/or % moisture, where applicable. No positive sample results should be reported unless the concentration of the compound in the samples exceeds the ALs:

ALs = 10x the amount of common contaminants (methylene chloride, acetone, 2-butanone, and toluene)
ALs = 5x for any other compounds

Specific actions are as follows:

If the concentration is < sample quantitation limit (SQL) and ≤ AL, report the compound as not detected (U) at the SQL.
If the concentration is ≥ SQL but ≤ AL, report the compound as not detected (U) at the reported concentration.
If the concentration is ≥ SQL and > AL, report the concentration unqualified.

Notes:

High and low level blanks must be treated separately
Compounds qualified "U" for blank contamination are still considered "hits" when qualifying for calibration criteria.

CONTAMINATION SOURCE/LEVEL	COMPOUND	CONC/UNITS	AL/UNITS	SQL	AFFECTED SAMPLES

DATA REVIEW WORKSHEETS

All criteria were met __X___
Criteria were not met
and/or see below _____

SURROGATE SPIKE RECOVERIES

Laboratory performance of individual samples is established by evaluation of surrogate spike recoveries. All samples are spiked with surrogate compounds prior to sample analysis. The accuracy of the analysis is measured by the surrogate percent recovery. Since the effects of the sample matrix are frequently outside the control of the laboratory and may present relatively unique problems, the validation of data is frequently subjective and demands analytical experience and professional judgment.
List the percent recoveries (%Rs) which do not meet the criteria for surrogate recovery.
Matrix: solid/aqueous

SAMPLE ID	SURROGATE COMPOUND			ACTION
	~~1,2-DICHLOROETHANE-d4~~	Toluene-d8	~~4-BFB~~	

_Surrogate_recoveries_within_laboratory_control_limits_____
_____
_____
_____
_____
_____

QC Limits* (Air)

_____LL_to_UL_____to_____ _50__to_150_ _____to_____

* QC limits are laboratory in-house performance criteria, LL = lower limit, UL = upper limit.
* If QC limits are not available, use limits of 80 – 120 % for aqueous and 70 – 130 % for solid samples.

Actions:

QUALITY	%R < 10%	%R = 10% - LL	%R > UL
Positive results	J	J	J
Nondetects results	R	UJ	Accept

Surrogate action should be applied:

If one or more surrogate in the VOC fraction is out of specification, but has a recovery of > 10%.

If any one surrogate in a fraction shows < 10 % recovery.

All criteria were met_____
Criteria were not met
and/or see below __N/A____

VII. A MATRIX SPIKE/MATRIX SPIKE DUPLICATE (MS/MSD)

This data is generated to determine long term precision and accuracy in the analytical method for various matrices. This data alone cannot be used to evaluate the precision and accuracy of individual samples. If any % R in the MS or MSD falls outside the designated range, the reviewer should determine if there are matrix effects, i.e. LCS data are within the QC limits but MS/MSD data are outside QC limit.

1. MS/MSD Recoveries and Precision Criteria

The laboratory should use one MS and a duplicate analysis of an unspiked field sample if target analytes are expected in the sample. If target analytes are not expected, MS/MSD should be analyzed.

List the %Rs, RPD of the compounds which do not meet the criteria.
Sample ID:_____ Matrix/Level:_____

MS OR MSD	COMPOUND	% R	RPD	QC LIMITS	ACTION
_____MS/MSD_are_not_required_as_part_of_Method_TO-17;_blank_spike_used_to_assess____ accuracy_____					

* QC limits are laboratory in-house performance criteria, LL = lower limit, UL = upper limit.
* If QC limits are not available, use limits of 70 – 130 %.

Actions:

QUALITY	%R < LL	%R > UL
Positive results	J	J
Nondetects results	R	Accept

MS/MSD criteria apply only to the unspiked sample, its dilutions, and the associated MS/MSD samples:

If the % R for the affected compounds were < LL (or 70 %), qualify positive results (J) and nondetects (UJ).
If the % R for the affected compounds were > UL (or 130 %), only qualify positive results (J).
If 25 % or more of all MS/MSD %R were < LL (or 70 %) or if two or more MS/MSD %Rs were < 10%, qualify all positive results (J) and reject nondetects (R).

A separate worksheet should be used for each MS/MSD pair.

All criteria were met ____
Criteria were not met
and/or see below __N/A__

VII. B MATRIX SPIKE/MATRIX SPIKE DUPLICATE

MS/MSD – Unspiked Compounds

It should be noted that Method TO-15 does not specify a MS/MSD criteria for the unspiked compounds in the sample. A %RSD of < 50% has therefore been utilized as professional judgment.

If all target analytes were spiked in the MS/MSD, this review element is not applicable.

List the %RSD of the compounds which do not meet the criteria.

Sample ID:_____ Matrix/Level/Unit:_____

COMPOUND	SAMPLE CONC.	MS CONC.	MSD CONC.	% RSD	ACTION

Actions:

* If the % RSD > 50, qualify the positive result in the unspiked samples as estimated (J).
* If the % RSD is not calculated (NC) due to nondetected value, use professional judgment to qualify the data.

All criteria were met __X__
Criteria were not met
and/or see below _____

VIII. LABORATORY CONTROL SAMPLE (LCS) ANALYSIS

This data is generated to determine accuracy of the analytical method for various matrices.

1. LCS Recoveries Criteria

Where LCS spiked with the same analyte at the same concentrations as the MS/MSD? Yes or No. If no make note in data review memo.
List the %R of compounds which do not meet the criteria

LCS ID	COMPOUND	% R	QC LIMIT

___LCS/LCSD_(Blank_spike)_analyzed_in_this_data_package;_%_recoveries_and_RPD_____
___within_laboratory_control_limits._____

* QC limits are laboratory in-house performance criteria, LL = lower limit, UL = upper limit.
* If QC limits are not available, use limits of 70 – 130 %.

Actions:

QUALITY	%R < LL	%R > UL
Positive results	J	J
Nondetects results	R	Accept

All analytes in the associated sample results are qualified for the following criteria.

If 25 % of the LCS recoveries were < LL (or 70 %), qualify all positive results (j) and reject nondetects (R).
If two or more LCS were below 10 %, qualify all positive results as (J) and reject nondetects (R).

2. Frequency Criteria:

Where LCS analyzed at the required frequency and for each matrix? Yes or **No**.
If no, the data may be affected. Use professional judgment to determine the severity of the effect and qualify data accordingly. Discuss any actions below and list the samples affected.

All criteria were met __X__
Criteria were not met
and/or see below _____

IX. LABORATORY/FIELD DUPLICATE PRECISION

Sample IDs: _ 1606272-01A/02A_(field)_____ Matrix:___Air____
Sample IDs: _ 1606272-09A/10A_(field)_____ Matrix:___Air____
Sample IDs: _ LCS/LCSD_(laboratory)_____ Matrix:___Air____

Field/laboratory duplicates samples may be taken and analyzed as an indication of overall precision. These analyses measure both field and lab precision; therefore, the results may have more variability than laboratory duplicates which only laboratory performance. It is also expected that soil duplicate results will have a greater variance than water matrices due to difficulties associated with collecting identical field duplicate samples.

The project QAPP should be reviewed for project-specific information.
Suggested criteria: RPD ± 25% for air samples. If both samples and duplicate are <5 SQL, the RPD criteria is doubled.

COMPOUND	SQL	SAMPLE CONC.	DUPLICATE CONC.	RPD	ACTION
RPD within the method performance criteria.					

Actions:

Qualify as estimated positive results (J) and nondetects (UJ) for the compound that exceeded the above criteria. For organics, only the sample and duplicate will be qualified.

If an RPD cannot be calculated because one or both of the sample results is not detected, the following actions apply:

If one sample result is not detected and the other is greater than 5x the SQL qualify (J/UJ).

If one sample value is not detected and the other is greater than 5x the SQL and the SQLs for the sample and duplicate are significantly different, use professional judgment to determine if qualification is appropriate.

If one sample value is not detected and the other is less than 5x, use professional judgment to determine if qualification is appropriate.

If both sample and duplicate results are not detected, no action is needed.

All criteria were met __X__
Criteria were not met
and/or see below ____

X. INTERNAL STANDARD PERFORMANCE

The assessment of the internal standard (IS) parameter is used to assist the data reviewer in determining the condition of the analytical instrumentation.

List the internal standard area of samples which do not meet the criteria.

* Area of +40% or -40% of the IS area in the associated calibration standard.
* Retention time (RT) within ± 0.06 seconds of the IS area in the associated calibration standard.

DATE	SAMPLE ID	IS OUT	IS AREA	ACCEPTABLE RANGE	ACTION

_Internal_standard_area_and_retention_times_within_laboratory_control_limits_for_both_samples_and_calibration_standards._____

Actions:

1. IS actions should be applied to the compound quantitated with the out-of-control ISs

QUALITY	IS AREA < -40%		IS AREA > +40%
Positive results	J		J
Nondetected results	R		ACCEPT

2. If a IS retention time varies more than 0.330 seconds, the chromatographic profile for that sample must be examined to determine if any false positive or negative exists. For shifts of a large magnitude, the reviewer may consider partial or total rejection of the data for the sample fraction.

All criteria were met __X__
Criteria were not met
and/or see below _____

XII. SAMPLE QUANTITATION

The sample quantitation evaluation is to verify laboratory quantitation results. In the space below, please show a minimum of one sample calculation:

1606272-01A

Naphthalene RF = 2.00219

[ ] = (55723)(36)/(474805)(2.00219)

= 2.110 ng OK

All criteria were met __X__
Criteria were not met
and/or see below _____

XII. QUANTITATION LIMITS

A. Dilution performed

SAMPLE ID	DILUTION FACTOR	REASONS FOR DILUTION
No dilution performed.		

B. Percent Solids

List samples which have ≤ 50 % solids

Actions:

If the % solids of a soil sample is 10-50%, estimate positive results (J) and nondetects (UJ)

If the % solids of a soil sample is < 10%, estimate positive results (J) and reject nondetects (R)